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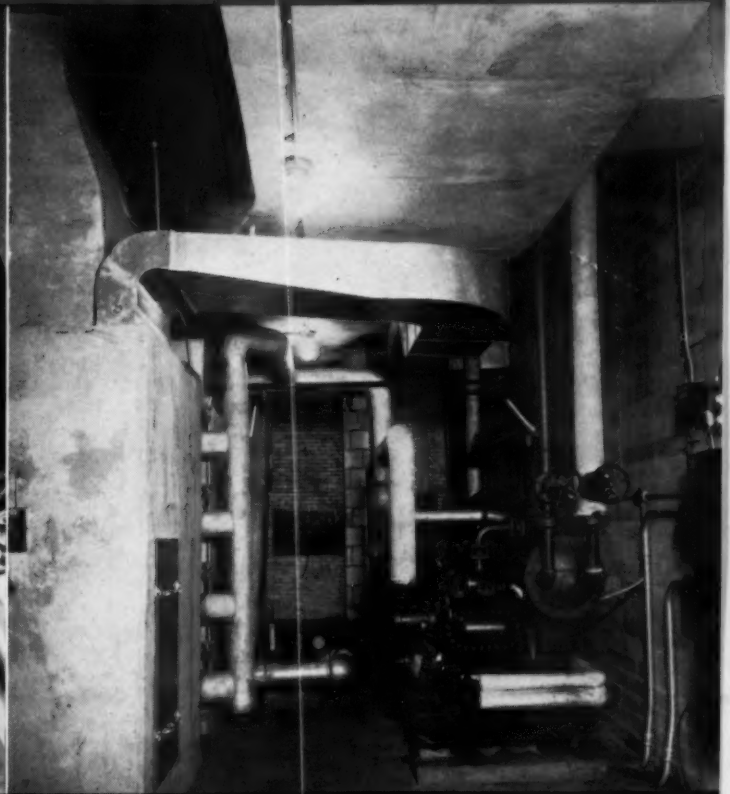
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# AMERICAN ARTISAN

RESIDENTIAL AIR CONDITIONING  
WARM AIR HEATING--SHEET METAL CONTRACTING



MARCH, 1946

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The Confused Heating Equipment Situation	- - - - -	Page 56

# AIR CONTROL ANNOUNCES



## A SENSATIONAL NEW LINE OF AIR CONDITIONING REGISTERS

Air Control's new No. 10 Series Register features the knob operated Air Flow Valve. This smartly styled register operates with a twist of the wrist yet holds securely in any position. The new Air Flow horizontal louvers combined with adjustable vertical fins provide 4-way adjustable air control. May be used with any stackhead—the curved louvers extend into the stackhead just the right amount to give uniform air distribution, but do not strike the stack.

Smart styling and unequalled performance—combined in Air Control's new No. 10 Series Air Conditioning Register.

Complete information about this outstanding register and AIR CONTROL'S complete post-war products are shown in the new Catalog 46. *Write today for your copy!*

**AIR CONTROL PRODUCTS, Inc.**

*Main office --* COOPERSVILLE, MICHIGAN



# WILL YOU REALLY MAKE MONEY

*on all those jobs ahead?*



**GETTING YOUR SHARE** of tomorrow's contracts is not going to be your major problem in the days ahead. The big problem—what with manpower and material shortages, increased costs and production delays—will be to actually come out of a job with a profit. One thing that can help achieve this is to increase the efficiency of your methods—to get the work done faster and cut job time costs.

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with *Thor*

**PORTABLE ELECTRIC  
TOOLS**

*A powerful Thor-Nado Electric Hammer does star-drilling, brick and concrete breaking, channelling, chipping and dozens of other hole-opening jobs in walls and ceilings to speed on-the-job installations.*

Both in the shop and out on the job, your men can save hours with Thor Portable Electric Tools. Drilling, hole-making in walls and ceilings, metal cutting, screwdriving, sawing and scores of other jobs are done up to 10 times faster than by tiring hand methods. Small and light—with far more power per pound than ordinary electric tools—Thor tools get into the tightest corners to speed the work and lower costs. For practical information on the many time-saving uses of these tools, call your nearby Thor Electric Tool Distributor.

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*Thor*

PORTABLE POWER

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PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

# AMERICAN

with which are merged  
**FURNACES**  
**SHEET METALS** **Warm-Air Heating**

Covering All Activities in Residential Air Conditioning and Small Commercial Cooling, Warm Air Heating, Sheet Metal Contracting and Fabricating

# ARTISAN

J. D. Wilder, Editor

A. A. Kennedy, Assistant Editor

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## In This Issue

**F**OR YEARS employers have been bewailing the poor mechanics now working in the industry. Despite much talk, little or nothing has been done to remedy the problem.

Now, under the G. I. Bill, our industry and other crafts in the construction industry are offered the finest opportunity we have had in years to obtain apprentices who are not kids, but adults, and with both some training and considerable interest.

If our craft and other crafts do not seize this opportunity to start apprentices—we will have only ourselves to blame. This subject is the springboard for this month's editorial—we hope readers will give this editorial some serious thought.

At the Sheet Steel Distributors meeting, Norman Foy presented a splendid analysis of the sheet situation. Because this subject is so important we have published Mr. Foy's paper in full beginning on page 95. You may not find in the paper an exact date on which your back orders of sheets will arrive, but you will find in the paper explanation of the underlying causes of this very important scarcity.

There will be held in Philadelphia, April 22 to 26 a convention and exposition of the oil burning industry. This will be the first heating equipment exposition staged since the war. Much interest is reported and a complete sell-out of exhibition space. Some details of the meeting and exposition are published on page 54.

**Founded 1880**

**MARCH, 1946**

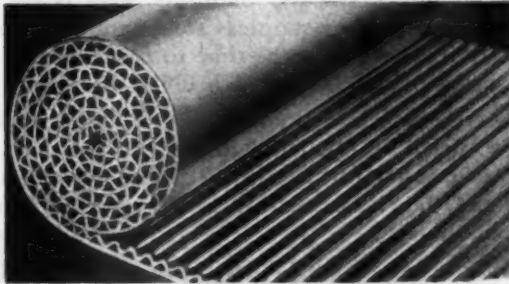
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# Quality Asbestos Products

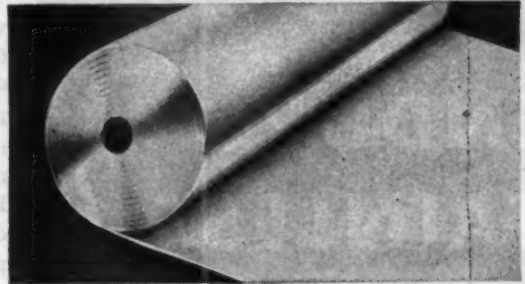


For well over half a century the trade name SAL-MO has stood for quality. Today the latest in new equipment combined with methods developed exclusively by SAL-MO, means the finest in Asbestos Products.

The popularity of SAL-MO Products has called for a constant increase in production. Today we are in a position to serve you promptly. Send your next order to SAL-MO.



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THAT'S ALWAYS

# PROFITABLE



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STAINLESS  
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**ENDURO STAINLESS STEEL**

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## IN STEEL FURNACES

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Since December 1st of last year, all Syncromatic COAL furnaces as well as OIL furnaces have been shipped with *Automatic Barometric Draft Control*—at NO extra cost!



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AGAIN... *Leadership!*

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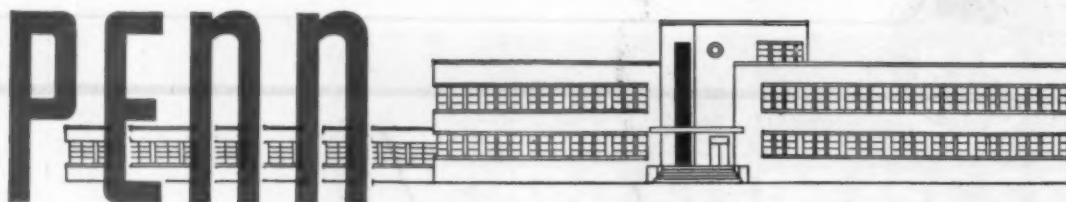
## She's Creating Better-Satisfied Customers for You

Such skill and experience as hers are creating better-satisfied customers for you every day. She is one of the many PENN experts in Quality Control and inspection . . . employed in PENN's modern factory to see that every product meets PENN's exacting requirements. As a result, the PENN Controls you handle are unrivaled for efficiency and dependability.

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## AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS



*"Yes sir, Sonny,*

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Equipment your Dad  
installed will be giving  
perfect service when  
you're my age."*



## FOR OVER 75 YEARS

Thru three quarters of a century, Weir-Meyer has built unparalleled leadership. This leadership is based solidly on advanced designing, engineering skill, and practical, on-the-job experience that results in finest quality equipment. WEIR-MEYER distributors and dealers "cash in" on the reputation and prestige of WEIR-MEYER. Truly, "Who makes it, makes a difference".

# WEIR-MEYER

MEANS *Modern Heat*

FRANCHISE PROTECTION



The WEIR-MEYER Franchise recognizes that adequate Distributor-Dealer profit is fundamental. Factory policies make the WEIR-MEYER Franchise one of the best in the industry.

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## FOR ALL FUELS - GAS - OIL - COAL

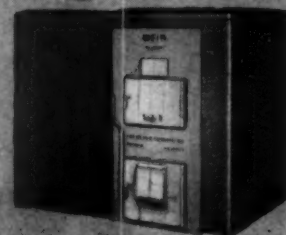
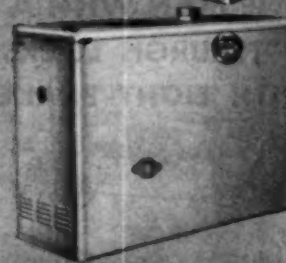
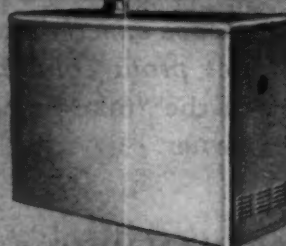
- for cottage or mansion

MEYER Gas-fired AIR CONDITIONERS offer the ultimate in fully automatic heat. Highest practical overall efficiency. Leak-proof, sturdy construction. Easy to install.

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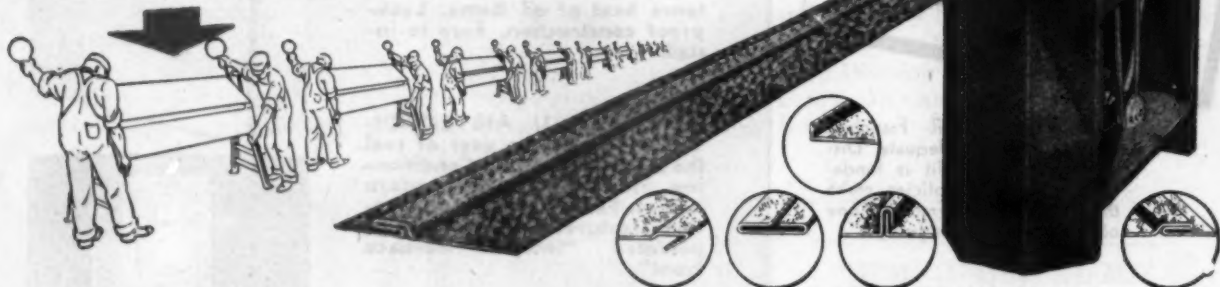


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**I**N duct fabrication, Lockformers save 50% of shop costs—not just in theory but in fact—not just in one shop but in hundreds of shops. And it's simple arithmetic that every dollar whittled out of the cost column means *exactly one more dollar in the net profit column*—one more dollar in the “take-home” pay of the shop owner.

Lockformers are versatile (see shapes shown below)—require little shop space and can be operated by your newest apprentice. To the best of our knowledge, *no Lockformer has ever worn out*. Machines purchased over eight years ago are still operating as smoothly as the day they were delivered—still adding substantial amounts to the take-home pay of their owners.

**ONE MAN WITH A LOCKFORMER CAN MAKE MORE  
PITTSBURGH LOCKS THAN SIXTEEN MEN  
WITH EIGHT BRAKES**



# THE LOCKFORMER CO.

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*Give your customers* Indoor Comfort "De Luxe"

... with

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**Climatrol is a system for conditioning and handling air . . . which enables you to deliver "Climate Control"**

Climatrol is your assurance of providing home owners with True Indoor Comfort . . . and winning their lasting good will. You not only enable them to enjoy today's higher standards of indoor comfort, but you also put them in a position to take advantage of future developments which can be added to the original Climatrol installation.

Indoor comfort depends upon the condition of the air in the home. When you install a system that is

basically designed to treat and handle air—as a permanent "built-in" feature of the home—you are creating a sound long-range investment for the home owner.

And when it's a Climatrol system, you also know that you can depend on the performance record of a company that has specialized in home comfort for 89 years. Each Climatrol unit is specially designed for efficiency with a specific fuel — gas, oil, or coal, whichever is preferred. There is a Climatrol unit to suit every home, in the complete Climatrol line. Be a Climatrol "comfort merchant" — it pays!

*Write for bulletins.*

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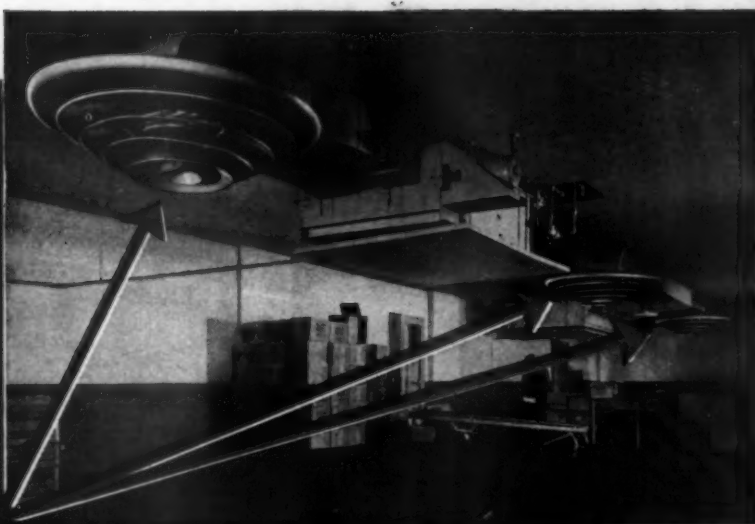


EMPLOYEES COULDN'T  
WORK HERE UNTIL  
CONTRACTORS

*eliminated drafts*

WITH

**ANEMOSTAT AIR-DIFFUSERS!**



You're looking at the shipping room of the Bowman Dairy plant at River Forest, Illinois. Originally it was equipped with two ceiling-type unit coolers with the usual horizontal grilles . . .

Blasts of air from these unit coolers were then so severe that employees could not endure room temperatures of 50° F.

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Due to its patented design, the ANEMOSTAT distributes air of any duct velocity in a multiplicity of planes traveling in all directions. Simultaneously, the unit creates a series of counter-currents which siphon into the device room-air equal to about 35% of the volume of the supply-air. This room-air is mixed with the supply-air within the diffuser before the air-mixture is discharged into the room. The velocity of the discharged air is instantly reduced within the ANEMOSTAT by air expansion.

In this way, the ANEMOSTAT diffuses air of any duct velocity noiselessly and evenly, thoroughly and draftlessly throughout the room . . . closely equalizes temperature and humidity . . . and prevents air stratification.

#### HOW ANEMOSTATS HELP THE CONTRACTOR

ANEMOSTAT wall or ceiling diffusers permit the use of higher velocities and greater temperature differentials. As a result, you gain corresponding reductions in duct sizes and number of duct outlets. Substantial savings in installation and operating costs naturally follow. And contractors particularly appreciate these ANEMOSTAT features—they have no moving parts . . . never need attention or replacement . . . never cause call-backs.

#### THERE IS NO SUBSTITUTE FOR ANEMOSTATS

Remember, that substitution of grilles, registers, or cheaper air-diffusers for ANEMOSTATS endangers the success of the whole air-conditioning installation. ANEMOSTATS assure a successful installation at a cost of less than 5% of the total air-conditioning investment. Be prepared to save money and trouble on your next air-conditioning job — write for your ANEMOSTAT Bulletin today.

**ANEMOSTAT**

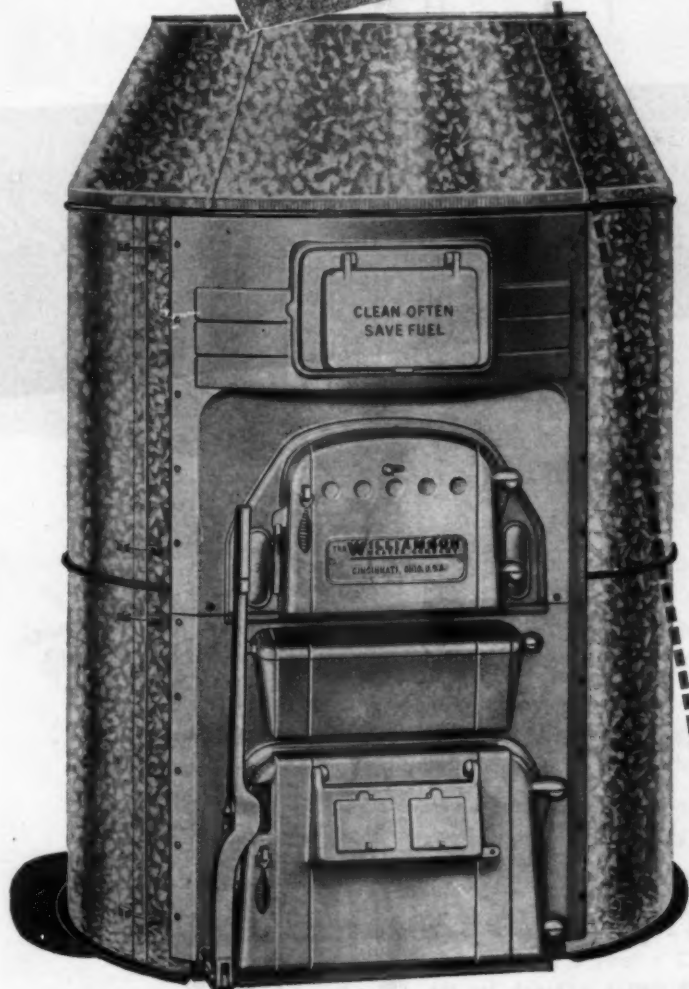
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**THE WILLIAMSON**  
HEATER COMPANY  
CINCINNATI 9, OHIO



"A miracle—a clean basement! Gone is the coal and ash dust, I can hang the clothes near the furnace and they stay clean. It's so 'livable' in the basement, we plan to put in a recreation room."



"I was on strike! I refused to shovel coal into a hungry hopper after I found out about the 'O.P.' coal burner. Why, it feeds the coal from bin to furnace automatically!"



"I'm throwing away these clinker tongs! Just think—no clinkers to dig—nor ashes to shovel! 'O.P.' has a marvelous ash removal feature that empties the ashes into a dust-proof container!"



"What a break for the budget! Our 'O.P.' burns inexpensive screenings as well as regular stoker coals."

# "O.P." COAL BURNER



"You can't beat 'O.P.' for comfort! The Minneapolis-Honeywell controls, along with the even heat of coal, keep the house at just the right temperature for comfortable, healthful living."



## "ORIGINAL POCAHONTAS"



Today the "lady of the house" insists on fully automatic coal heat. And she knows she can get it—with an "O.P." Coal Burner—successor to the stoker.

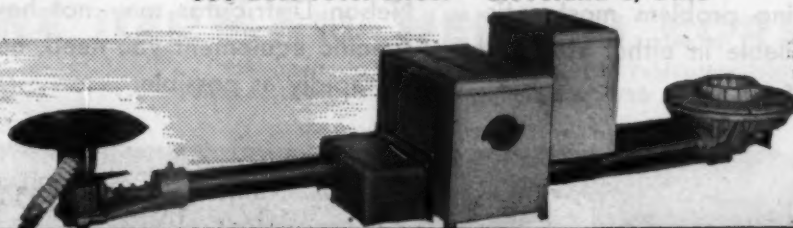
For more than 11 years—over the tea cups, the back fences, and the bridge tables—thousands of satisfied "O.P." owners have been passing along the good word. Newspaper and magazine promotion has also helped create this demand for the "Original Pocahontas" completely-automatic coal-burner.

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Write now for complete information on the sales advantages of "O.P." equipment.

**POCAHONTAS FUEL COMPANY INCORPORATED**

338 East 131st Street • Cleveland 8, Ohio



**THE FIRST SUCCESSFUL BITUMINOUS  
BIN-FEED ASH REMOVAL COAL BURNER  
... SUCCESSOR TO THE STOKER**

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**3** A nationwide distributor organization provides cooperation second to none in the industry. You can get practical as well as technical information and assistance on your jobs from the nearest Herman Nelson Branch Office, Product Application Engineer or Distributor.

**4** Many Distributors now carry stocks of Herman Nelson Propeller Fans and other products. If, because of heavy demands, your Herman Nelson Distributor may not have on hand the specific equipment you need, he will supply you as rapidly as possible.



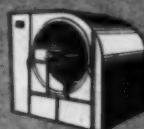
Herman Nelson  
Direct Drive  
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Herman Nelson  
Belt Drive  
Propeller Fans



Herman Nelson Horizontal  
Shaft Propeller-Fan Type Unit Heaters

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Shaft Propeller-Fan Type Unit Heaters

Herman Nelson  
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# Over America are installing PROPELLER FANS

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Mansfield, O.  
Hyman Supply Co.  
Wilmington and Fayetteville, N. C.  
Industrial Supply Co.  
Terre Haute, Ind.  
Industries Distributors, Inc.  
Shreveport, La.  
Industries Sales Corp.  
New Orleans, La.  
Industries Supply Co.  
San Diego, Calif.

Inland Supply Co.  
Champaign, Danville, Elgin and Joliet, Ill.  
Inland-Peoria Supply Co.  
Peoria, Ill.  
International Engr. & Supply Co.  
Providence, R. I.  
J. D. Johnson Co., Inc.  
Poughkeepsie, N. Y.  
E. Keeler Company  
Williamsport, Pa.  
Kester Machinery Co.  
Winston-Salem, High Point and Burlington, N. C.  
The W. H. Kiefaber Co.  
Dayton and Hamilton, O.  
Knapp Supply Co.  
Muncie, Ind.  
LaCrosse Plumbing Supply Co.  
LaCrosse, Wis.  
Lehigh Valley Supply Co.  
Allentown, Lansdale, East Stroudsburg and Easton, Pa.  
LeValley, McLeod, Kinkaid Co., Inc.  
Elmira, Olean, Schenectady, N. Y.  
The Link Company  
Jackson, Mich.  
Luzerne & Lackawanna Supply Co.  
Wilkes-Barre, Pa.  
Manufacturers Selling Co.  
Trenton, N. J.  
Marsden & Wasserman, Inc.  
Hartford, Conn.  
Michigan Supply Co.  
Lansing, Mich.  
Chas. Millar & Son Co.  
Utica and Binghamton, N. Y., Springfield, Mass., & St. Johnsbury, Vt.  
Missouri Water & Steam Supply Co.  
St. Joseph, Mo.  
Morrison Supply Co.  
Fort Worth, Amarillo, Lubbock, Wichita Falls and Sweetwater, Tex.  
Mott Bros. Company  
Rockford, Ill.  
Murphy Supply Co.  
Green Bay, Wis.  
The Ohio State Supply Co.  
Youngstown, O.  
Palmer Plumbing Supply Co.  
Laconia and Rochester, N. H.

Palmer Supply Co.  
Portland, Me.  
The Penn State Supply Co.  
Sharon, Pa.  
Reading Foundry & Supply Co.  
Reading, Pottsville, and Lebanon, Pa.  
Robbins-Gamwell Corporation  
Pittsfield, Mass.  
The Roedel Company  
Zanesville, O.  
The Salina Supply Co.  
Salina, Kan.  
San Antonio Machine & Supply Co.  
Corpus Christi and Waco, Tex.  
Shore Distributors  
Salisbury, Md.  
Southern Equipment Co.  
San Antonio, Tex.  
Strong, Carlisle & Hammond Co.  
Cleveland, O.  
Toy-Holbrook, Inc.  
Sacramento, San Francisco, Fresno, San Jose and Stockton, Calif.  
The Tholen Bros. Supply Co.  
Leavenworth, Kan.  
The Topeka Steam Boiler Wks. Co., Inc.  
Topeka, Kan.  
Trimble & Lutz Supply Co.  
Wheeling, W. Va.  
Geo. E. Trudel Co.  
Manchester, N. H.  
U. S. Supply Co.  
Kansas City, Mo., Wichita, Kan., Oklahoma City, Okla., and Omaha, Neb.  
The Universal Supply Co.  
Parkersburg, W. Va.  
J. A. Walsh & Co., Inc.  
Houston, Texas  
Washburn-Garfield Co.  
Worcester, Mass.  
Western Maryland Supply Co.  
Hagerstown, Md.  
Wigman Company  
Sioux City, Ia.  
Wisconsin River Supply Co.  
Wausau, Wis.  
Yelton-Weaver Supply Co.  
Springfield, Ill.



## THE HERMAN NELSON CORPORATION

Manufacturers of Quality Heating and Ventilating Products  
GENERAL OFFICES AND FACTORIES LOCATED AT MOLINE, ILLINOIS



Herman Nelson  
Belt Drive  
Unit Blowers

Herman Nelson  
Direct Drive  
Unit Blowers



Herman Nelson  
Blower-Fan Type  
Unit Heaters

Herman Nelson  
De Luxe Unit Heaters



Herman Nelson  
Unit Ventilators



**This Sturdy, Composite  
FIREBOX-ECONOMIZER UNIT**

Makes *Gar Wood*  
**TEMPERED-AIRE**  
*Easier to Sell!*



Gar Wood oil fired Tempered-Aire, long famous for economical performance, now provides complete comfort with less fuel oil than ever before.

An important factor is the newly designed, integrally built firebox-economizer unit in which the famous Gar Wood down-draft principle reaches a new degree of perfection. Products of combustion pass-down and through flat tubes in the economizer located *below* the combustion chamber. Cold air from the blower is forced between these tubes and becomes heated *before* it reaches the firebox. Thus a maximum of heat is utilized. The improved tear-drop shape of the firebox creates an exceptionally large area of heating surface. And because the peak is removed from the firing zone, flame impingement and hot spots are eliminated. This sturdy firebox-economizer unit is designed to give years of dependable operation. Gar Wood Tempered-Aire is the heating unit that modern home owners want... *it's easy to sell.*

This advertisement describes postwar equipment which is not now available. It does not constitute an offer to sell or deliver and no suggestion is made that orders be solicited. This notice will cease to apply when ceiling prices have been established by the O.P.A.



**GAR WOOD INDUSTRIES, INC.**  
HEATING DIVISION • DETROIT 11, MICHIGAN

Canadian Distributors: Engineering Industries, Ltd.,  
282 Dupont St., Toronto, Ont.

HOISTS AND BODIES • WINCHES AND CRANES • TANKS • ROAD MACHINERY • MOTOR BOATS



*Write Today for This  
Free Booklet*



"KING COAL" MOVES

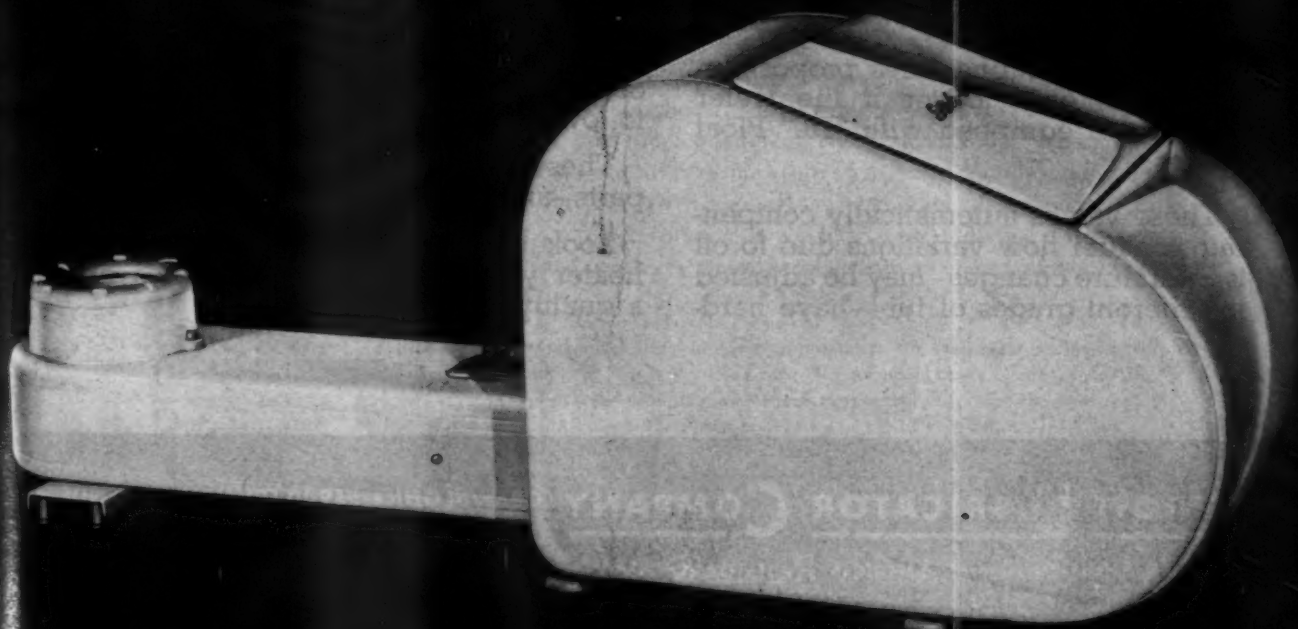
*into the*

*Home Appliance Class*

*with the*

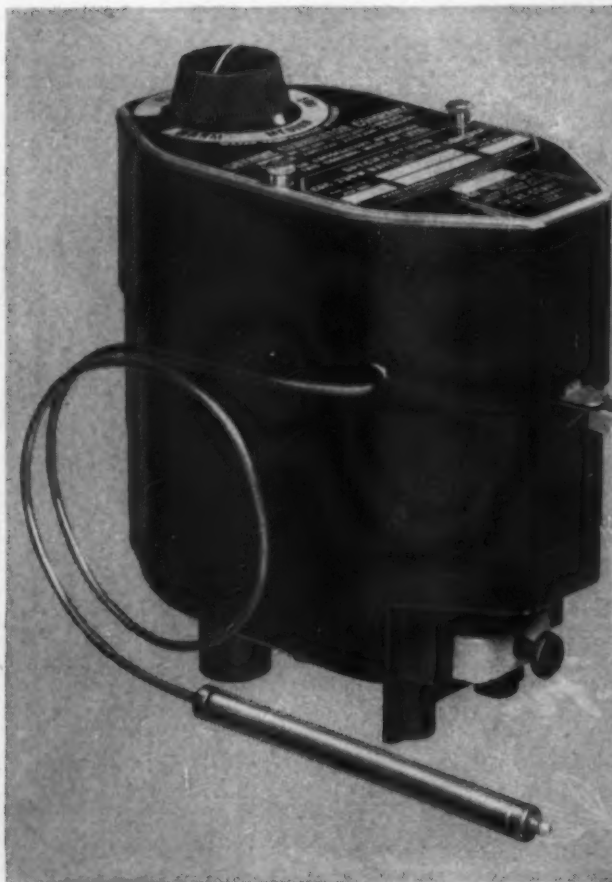
WHITE

*Stok-A-Fire*



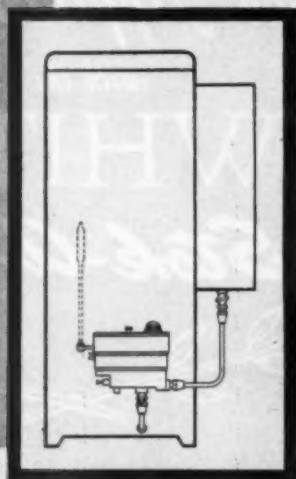
*Stok-A-Fire Co.*

6504 OLIVE BLVD. — ST. LOUIS 5, MO.



# SELL WATER HEATING *By Oil*

good heaters  
are equipped  
WITH  
**"DL"** float  
valves



Actual tests show that the good oil fired water heater is ideal for satisfaction and economy. It will provide ample supplies of hot water at remarkably low fuel cost.

This makes a fine sales proposition—which is even better if the water heaters are equipped with "DL" Float Valves.

These valves automatically compensate for fuel flow variations due to oil temperature changes—may be adjusted to different grades of fuel—have hard-

ened steel safety trip mechanism—are easily regulated by the user for desired water temperature.

The power element automatically regulates the burner to keep water hot. It is a "fail safe" element—in case of damaged element, the burner goes to low fire.

These valves are simple—have few parts—are easy to clean and service.

Look for "DL" Float Valves on the heater you sell—they are evidence of a quality product.

**DETROIT LUBRICATOR COMPANY** General Offices: 5900 TRUMBULL AVENUE  
DETROIT 8, MICHIGAN

Division of **AMERICAN RADIATOR & Standard Sanitary** CORPORATION  
Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG



"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • "Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators



**SELL THE  
VICTOR  
COMPLETE FURNACE LINE**

*Beauty*

**Plus Heat Radiating**



In 55 years a manufacturer can learn a lot about his product. All the good things in efficient engineering, practical beauty of design, economy of operation, quality of craftsmanship and material that Hall-Neal has acquired in 55 years of furnace building have been built into the VICTORS you sell. There is no substitute for experience . . . and remember that VICTOR heat radiating FINS make more satisfied owners . . . more satisfied owners make you more sales!

**To Our  
Dealers —  
Our Sincere  
THANKS!**

We wish to express to our dealers our deep appreciation for their patience and loyalty to us during the difficult times now passing. We expected, before now, to be in a position to make deliveries promptly as orders were received. We sincerely believe that it will not be too long before prompt service to all of you can be resumed. We are sure you realize that we are as anxious to ship VICTORS to you, as you are to get them. We are bending all our energies to that end.

**FURNACES • OIL BURNERS • GAS BURNERS • STOKERS • BLOWERS • ACCESSORIES**

**HALL-NEAL FURNACE Co.**

**VICTOR Quality Furnaces Since 1890**

**1326 N. CAPITOL AVENUE • INDIANAPOLIS 7, INDIANA**

- No expensive trimming dies
- No tie-ups of press time

with this  
**FAST, ACCURATE WAY  
 TO TRIM AND FORM  
 INTRICATE STAMPINGS**

Quickwork stamping trimmers trim, form, bead, and flange complicated stampings in a matter of seconds—and do it accurately to  $\pm .003$  in. Eliminating the need for expensive trimming dies and saving valuable press time, they cut production costs and speed output as well.

Handling almost any type of stamping in a single plane, Quickwork trimmers trim steel, stainless steel, and aluminum alloy stampings, with or without flash, with equal ease. Jigs or fixtures for each trimmer are specially adapted to the job, guiding even the most intricate stampings throughout the entire pass.

Check the possibilities of a Quickwork for solving *your* stamping trimming problems; write for Bulletin QW-119 today.

**WHITING**  
 CORPORATION

15610 LATHROP AVENUE, HARVEY, ILLINOIS

Export Department: 136 Liberty Street,  
 New York 6, N. Y.



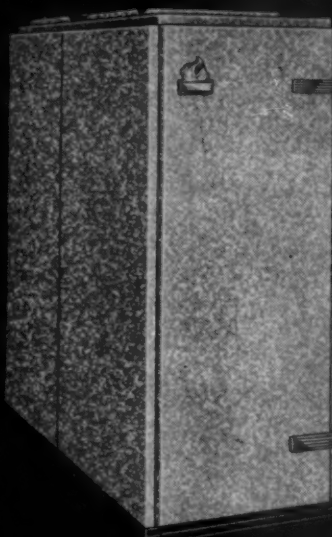
A Quickwork stamping trimmer trimmed over 100,000 of these 14-gauge stampings accurately to  $\pm .003$ . There were no rejects.



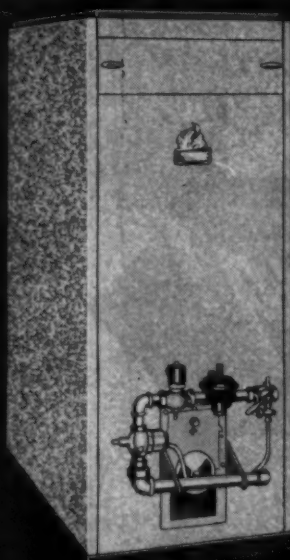
Typical sliding supporting fixture for a special application. Stamping shown is for a water cooler cabinet top.



The part stamping positioned for trimming. Quickwork cutters are also specially adapted to the job.



SERIES A  
GAS-FIRED, STEEL  
AIR CONDITIONING UNITS



SERIES G  
GAS-FIRED, STEEL GRAVITY UNIT



SERIES H  
GAS-FIRED, STEEL, UTILITY  
AIR CONDITIONING UNIT

## HERE'S YOUR *Priority* IN THE HEATING MARKET! THE *NEW Luxaire* LINE OF AUTOMATIC GAS FIRED EQUIPMENT!

With Luxaire's new 1946 line of automatic, gas-fired heating and air conditioning equipment, you can depend on preferred priority in heating market sales.

Never before has such an outstanding line of automatic, gas-fired units—so distinctive . . . so advanced in design and construction . . . so efficient in operation, been offered to the heating trade. Equipment that you can count on to more than meet the dreams and expectations of post-war buyers.

And remember—when you sell Luxaire, you

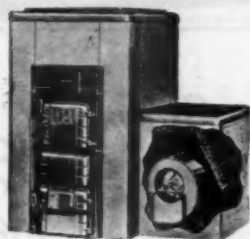
sell new postwar heating equipment—equipment that has complied with the latest specifications of the American Gas Association—not simply prewar models with a new dress.

Also to meet the demand of the oil-fired and coal-fired markets, Luxaire's smartly-styled, nationally-recognized and accepted line of oil-fired and coal-fired, heating and air conditioning equipment will give you a complete line that is easier to sell than compete with.

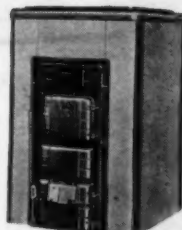
# *Luxaire*



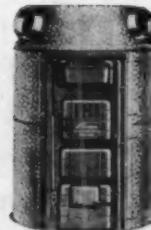
Series 8000  
Oil-Fired, Steel Air  
Conditioning Unit



Series AC-700  
Coal-Fired, Steel Air  
Conditioning Unit



Series 700  
Coal-Fired, Steel  
Gravity Furnace



Series 600  
Coal-Fired, Steel  
Gravity Furnace



Series C  
Coal-Fired, Cast  
Gravity Furnace

THE C. A. OLSEN MANUFACTURING CO. ELYRIA, OHIO



# Now Showing!

## ...and SELLING for YOU!

"Your prized furniture won't dry out . . . in fact, all of your home furnishings will last longer, look better . . . when you heat with forced-warm-air." That's a powerful beginning for a powerful selling advertisement, reaching millions of families this month.

In the March issues of American Home, House Beautiful, House & Garden and Parents' Magazine, the makers of DUST-STOP<sup>®</sup> are again telling Homemakers about the advantages of modern winter air conditioning. This time, the important humidity story is stressed—at a season of the year when it should be particularly effective, the end of the heating period.

Helping to promote Forced-Warm-Air Heating and Winter Air Conditioning is an old, established practice with the Owens-Corning Fiberglas organization. And it's a practice we intend to continue—to tell and sell the advantages of Forced-Warm-Air at every opportunity.

The more systems that are sold, the more we *all* will benefit.

\*T. M. Reg. U. S. Pat. Off.

OWENS-CORNING  
FIBERGLAS CORPORATION

*"Your partner whose  
Actions speak louder than words"*



**YOUR PRIZED FURNITURE** won't dry out, will last longer—in fact, all of your home furnishings will last longer, look better—when you heat your home with a modern forced-warm-air system. Here are some of the reasons why:

With a forced-warm-air system, you can have controlled humidity with your heat. This has a direct bearing on comfort, too. Moreover, you'll find that your home stays cleaner—much cleaner—with this type of heat. That's because dust and dirt are removed from the warm, circulating air before it gets up into your living quarters. You'll be surprised at how much this can save in cleaning costs and redecorating expense.

So, make a note now to look into forced-warm-air heat before you buy, build or remodel your home. You'll find it has all of the features you could possibly want. Best of all, it's inexpensive to operate. Consult your local builder, architect or heating contractor.

**DUST-STOP<sup>®</sup> AIR FILTERS** are standard equipment in most modern forced-warm-air furnaces. Replacements cost little, are available in every community. Dust-Stops are a product of Owens-Corning Fiberglas Corporation, 661P Nicholas Building, Toledo 1, Ohio.

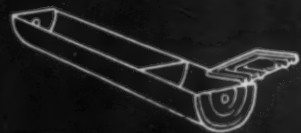


# DUST-STOP

*Sell more  
**DUST-STOP<sup>®</sup>**  
this Spring!*

**FREE Selling Helps** make it easy.  
Write for details today!

# COMPLETE SERVICE MEANS SATISFIED CUSTOMERS



*"Grow  
Big"*

THROUGH FULL LINE  
REPRESENTATION  
TO THE WARM AIR  
HEATING TRADE

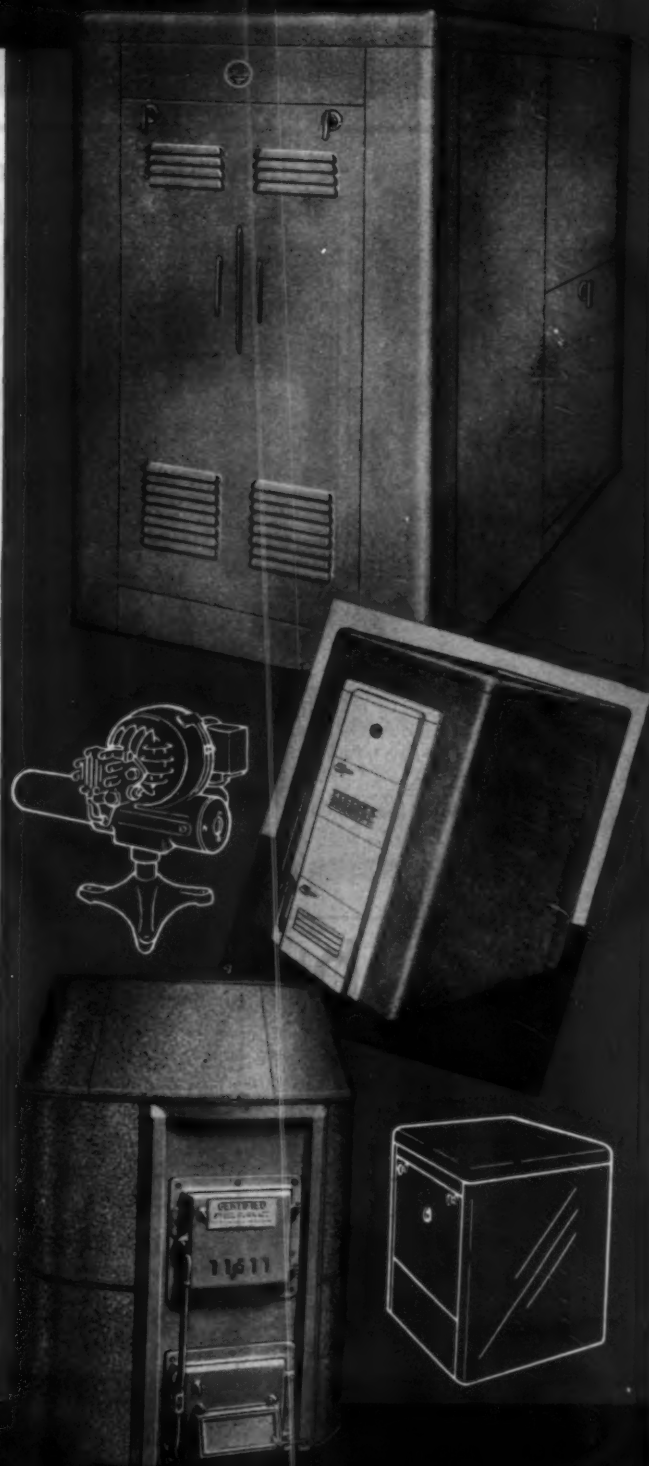
Certified offers the type and quality of equipment that meets the modern trend for complete dealer heating service. This full line of warm air heating equipment is now offered through jobber distribution to aggressive dealers who are recognizing the profit value in full line representation.

Past records of performance plus modern styling and advanced construction features have made Certified heating units increasingly popular for all types of dwellings.

FOR FURTHER INFORMATION ON THIS  
EQUIPMENT SEE YOUR JOBBER OR  
WRITE US DIRECT.

*Better  
Heating*

FOR ALL TYPES OF BUILDINGS



**CERTIFIED FURNACE CO.**

DIVISION OF

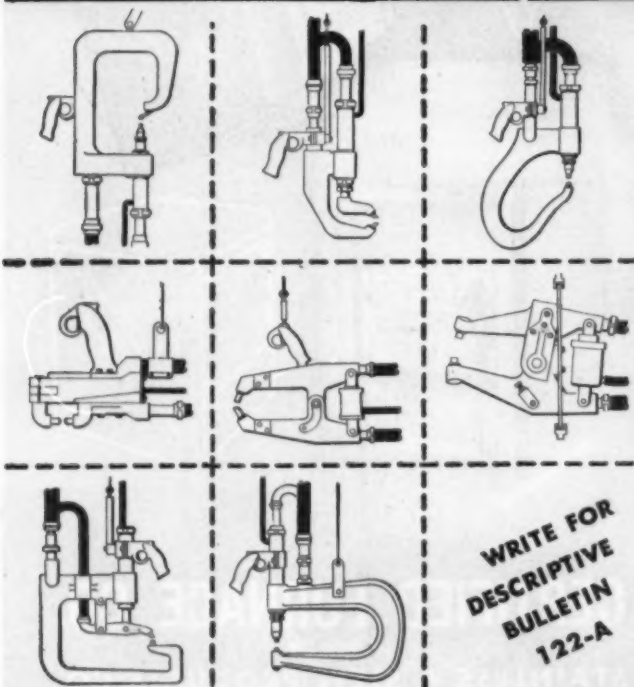
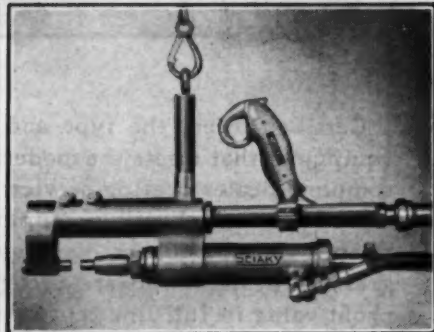
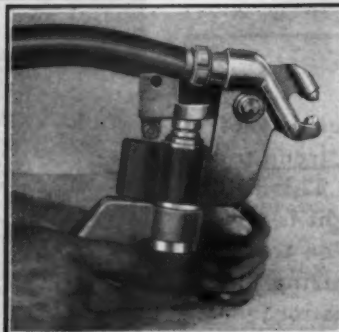
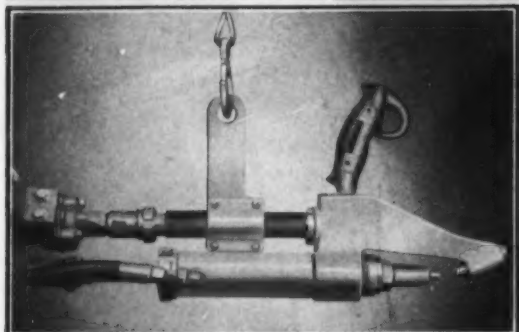
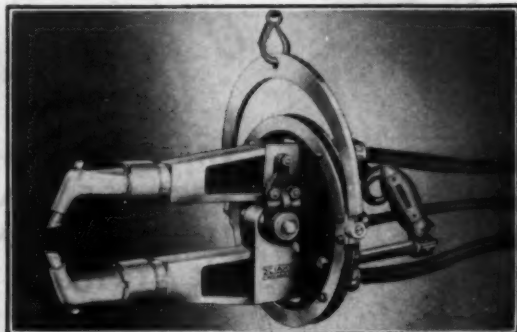
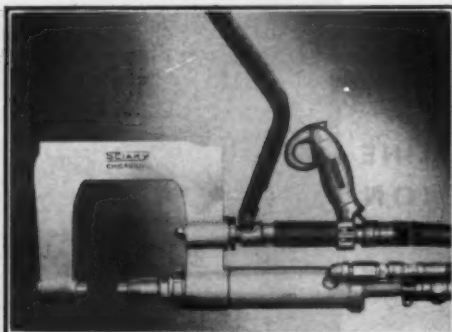
STAINLESS & STEEL PRODUCTS CO.  
1000 BERRY AVE. ST. PAUL, MINN.

**NOW IT'S**

# SPOT WELDING GUNS



**Sciaky builds 'em LIGHT - FAST - ADAPTABLE - STURDY**  
in both pneumatic and hydraulic types - to handle every job



**WRITE FOR  
DESCRIPTIVE  
BULLETIN  
122-A**

**Makers of Quality Resistance Welding Equipment.**  
Offices in New York, Washington, Detroit and Los Angeles.  
Representatives in principal cities. Plants in London and Paris.



**T**HE SPOT WELDING Gun is now the weapon to "mow down" your old enemies—high operating costs and slow production.

Sciaky guns are designed with a simplicity which cuts weight without sacrificing strength or performance. Further advantages are:

- \*Basic gun types are adaptable by changing yoke, suspension or handle position.
- \*Ample provision for cooling electrodes, yokes and jaws.
- \*Removable tips . . . easy replacement or mounting of different types.
- \*Cylinders on both "alligator" and "C" type guns can be made for different strokes.
- \*Special construction positions moving electrode very close to border of gun.
- \*All moving parts are protected by properly located felt seals.
- \*Hydraulic guns use water system with special booster—system is automatically refilled in case of leakage. All parts contacting water are made of rustless materials.

**SCI AKY BROS.**

4905 W. 67th St.

Chicago 38, Ill.



# Picture of a Super-Salesman



The smart styling of the new CONCO STOKER gives it a look of richness and quality that stops traffic before a dealer's window, and brings prospects inside for a closer look. Right now, production is limited. But this is the kind of stoker a prospect will wait for . . . it is that attractive, that efficient, that new! So here's a tip: If yours is a large, aggressive distributor organization, write and let us give you the facts on the complete CONCO-HEAT line — coal, oil and gas. Some

few choice territories are still open, and as production increases they will be filled with distributors who will do an outstanding selling job on an outstanding line. If you qualify, please write.

FIELD ★ ★  
BAROMETRIC  
DRAFT CONTROLS  
are STANDARD  
with CONCO

## BUILDERS OF A COMPLETE HEATING LINE

- DOMESTIC STOKERS      ● STEEL FURNACES
- COMMERCIAL STOKERS    ● OIL-FIRED AIRCONDITIONERS
- GAS-FIRED AIRCONDITIONERS

CONCO ENGINEERING WORKS • MENDOTA, ILLINOIS



IT'S  
THE NEW  
CONCO  
DOMESTIC  
STOKER

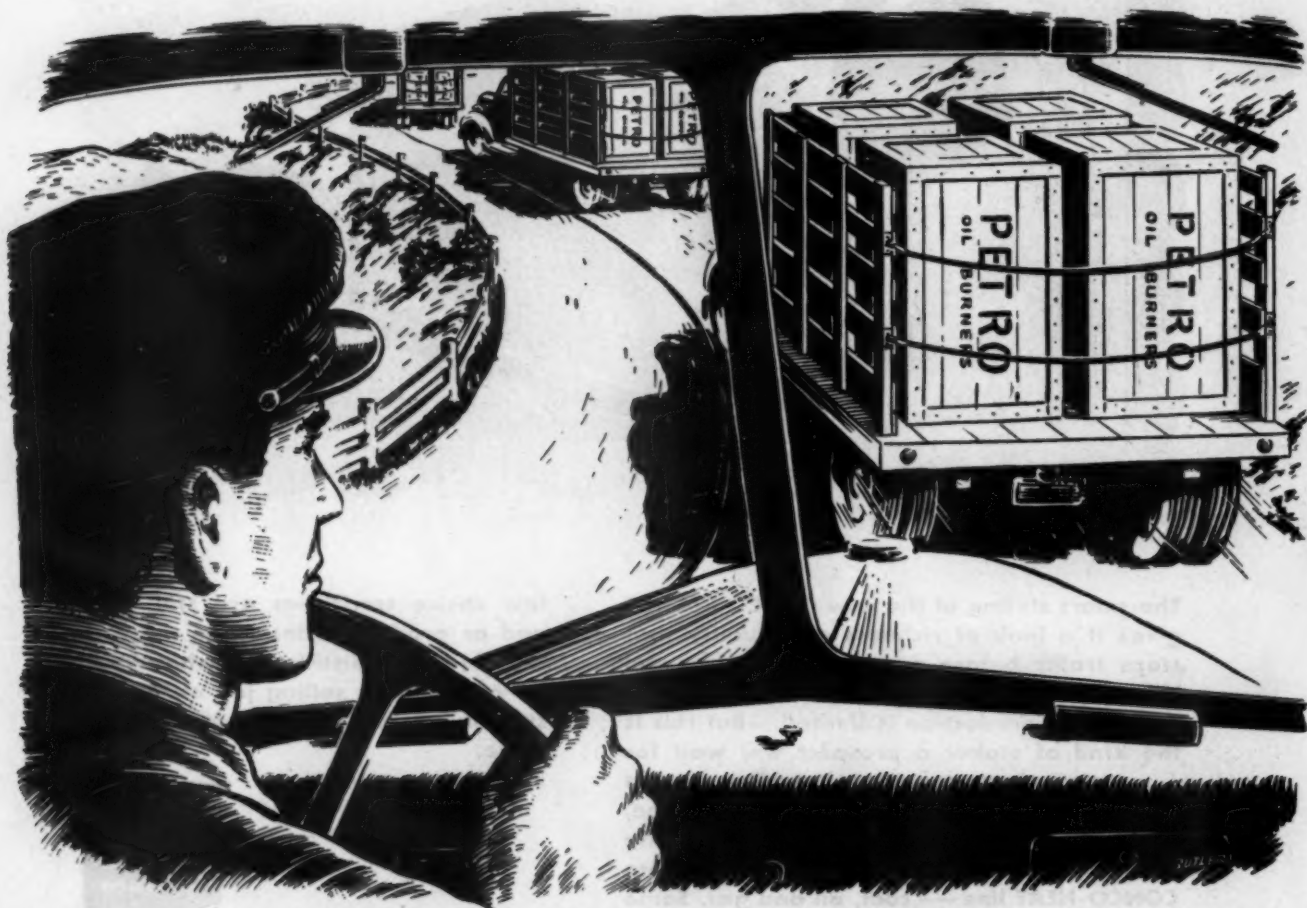
Keep your eye on **PETRO**... because

## **PETRO IS GOING PLACES!**

For the time being, quantity delivery of PETRO Burners must necessarily be delayed, and the new PETRO Line—packed with many attractive sales features—must await production until our suppliers can assure us of a greater flow of auxiliary parts.

Once PETRO gets rolling, however, a new page in sales history will be written as PETRO establishes new record heights in burner sales volume!

PETRO—the Oil Heating Equipment *preferred* by heating men—is *distributed* through heating men. Write today for information on PETRO Oil Burners as well as the name of the wholesale heating supply house nearest you.



**PETROLEUM HEAT AND POWER COMPANY • STAMFORD, CONNECTICUT**

PETRO FUEL OIL BULK PLANTS, DISTRIBUTION TERMINALS AND FACILITIES IN: BOSTON • PROVIDENCE • STAMFORD  
MT. VERNON • NEW YORK • LONG ISLAND • NEWARK • PHILADELPHIA • BALTIMORE • WASHINGTON • CHICAGO

# **PETRO**

REG. U. S. PAT. OFF.

MAKERS OF GOOD OIL BURNING EQUIPMENT  
SINCE 1903

*Make it with*  
**WHEELING  
EXPANDED  
METAL**

VENTILATED STEEL SASH  
WINDOW GUARDS

BELT GUARDS

SOLARIUM GUARDS

PIPE RAIL FILLER GUARDS

COMBINATION  
GYMNASIUM  
WINDOW AND  
RADIATOR GUARDS

MACHINE GUARDS

FLY WHEEL GUARDS

A line of real, practical value for all  
sheet metal workers—materials designed  
for your use, tested in practice, and  
all bearing a famous name.



**WHEELING CORRUGATING COMPANY**  
WHEELING, WEST VIRGINIA

Boston • New York • Buffalo • Cleveland • Atlanta • Detroit  
Columbus • Chicago • Philadelphia • Richmond • Minneapolis  
Pittsburgh • Louisville • St. Louis • Kansas City • New Orleans





A PREVIEW OF MERCROID DISPLAY AT THE NATIONAL OIL HEAT EXPOSITION IN THE COMMERCIAL MUSEUM, PHILADELPHIA, PA., DURING APRIL 23RD TO 27TH, 1946

*We'll Be Seeing You At...*

## **THE CORNER BOOTH N° 101**

This is the first convention rendezvous since prewar days. We look forward to greeting old friends and meeting new people in the industry on this peace time occasion to talk over our postwar problems and opportunities.

THE MERCROID CORPORATION, 4201 BELMONT AVE, CHICAGO 41, ILL.





## IN HOME OR INDUSTRY **WINKLER** MAKES ENTHUSIASTIC OWNERS

**"Almost paid for itself  
in coal savings alone"**

We call this stoker "Old Faithful" because it has given perfect performance. Certainly it is one of the finest things an elderly couple could have as it saves so many weary trips to the basement to shovel coal, shake grates, bank the fire, remove ashes and so on. Our stoker has almost paid for itself in coal savings alone—but even if we burned more coal—the pleasure we had from the Winkler the very first winter repaid its cost to us.

We had it inspected not long ago and found it was in perfect mechanical shape, although it has never been serviced except to have the oil changed.

*Signed*

**JAMES A. BUTLER**



**"42% return on this investment in a Winkler"**

The Model 20 Winkler Stoker installed in our dairy in 1943 has almost paid for itself in the first two years.

Our records show that this stoker is saving one ton of coal every 8 days. This means a yearly savings of 45 tons of coal, and at current prices this represents a return of around \$365.00 per year, or a return of 42% on our investment in the stoker.

Naturally such a record is extremely gratifying to us and it is evident that the unusually efficient operation of the Winkler is responsible for this fine showing. We were very much surprised that the stoker would make this saving possible, as it replaced another make of stoker.

We have not had a bit of trouble with the Winkler and this is certainly a relief after our troubles with the other unit. Sheared pins and transmission breakdowns no longer hamper our work. Now there is always an adequate supply of steam for pasteurizing and in addition the stoker provides heat for our plant during the winter.

*Signed*

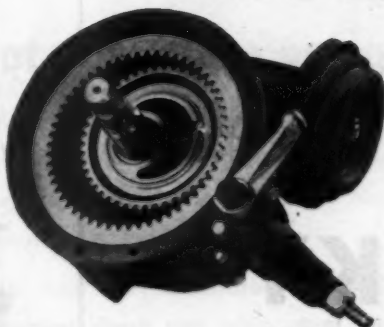
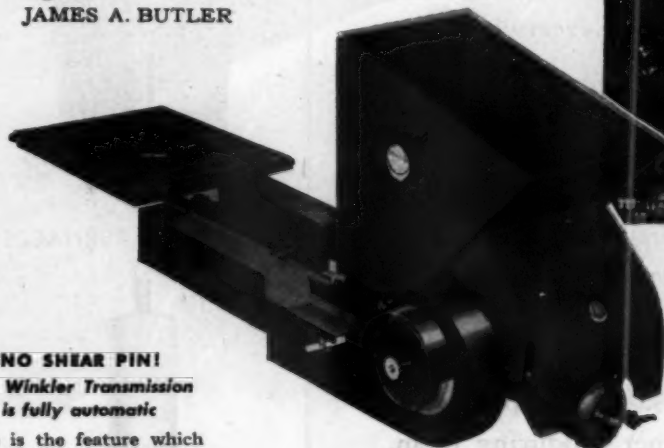
**J. F. BERLING DAIRY PRODUCTS CO.**  
Aug. H. Berling

### **NO SHEAR PIN!**

*The Winkler Transmission  
is fully automatic*

Here is the feature which gives Winkler the edge!

When the screw load exceeds a predetermined torque, the Winkler Automatic Safety Release disconnects the transmission from the drive shaft, then momentarily re-engages it. If the obstruction is rock or slate, two or three re-engagements will, in most cases, crush it. If the feed screw is permanently locked, the mechanism is fully protected, even though it runs for hours. Upon removal of the obstruction, the Winkler resumes normal operation.



# WINKLER

*fully automatic* **STOKERS**

**U. S. MACHINE CORPORATION • Dept. N-6 • LEBANON, IND.**

**MATCH THE WINKLER FRANCHISE IF YOU CAN**

The Winkler Franchise offers the two essentials of profitable stoker merchandising—a product which challenges comparison—and an organized merchandising plan which gives you the training, the tools and the selling methods which enable you to take full advantage of today's tremendous demand for stokers. Write today for complete information.

# Will you get your share of **KRESKY** DEALER PROFITS?



**O**IL heat should make greater strides than ever after the war and EXTRA sales mean extra profits. That's why dealers everywhere are looking into the KRESKY line now . . . making plans to round out their own line with KRESKY equipment.

First of all there's the KRESKY Floor Furnace, the *original* and still the only forced air oil-fired floor furnace bearing the Underwriters label. Then there's KRESKY range burners, presenting a huge opportunity for a conversion volume in some localities. Other items include the KRESKY forced air furnaces, water heaters and space heaters. All equipped with the patented KRESKY oil burner producing clean, economical, trouble-free heat.

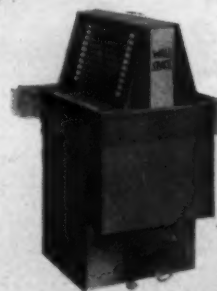
Look into KRESKY now. Write for full particulars on the attractive KRESKY Dealer Merchandising Plan.



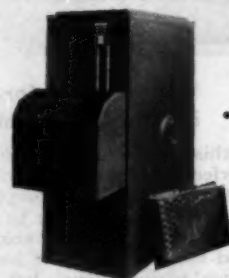
*Listed by Underwriters' Laboratories, Inc., to Burn No. 3 Oil (Diesel) or lighter*

## **KRESKY** MANUFACTURING CO.

*Pioneers in Oil Burning Equipment Since 1910*  
PETALUMA CALIFORNIA



FLOOR FURNACES



UTILITY HI-BOY



FORCED AIR FURNACES



WATER HEATERS



FOR CONVERTING  
WOOD AND COAL  
RANGES

**WORLD-WIDE ACCEPTANCE WON BY PERFORMANCE**





# Weirzin

ELECTROLYTIC ZINC COATED SHEETS AND STRIP

*keeps its COAT  
right through production*

## ... will not peel, flake or powder under extreme fabrication

If your product requires zinc-coated sheet or strip steel, you may have faced the problem of coating breakdown under deep drawing or difficult forming and bending operations.

That trouble can now be eliminated. Weirzin electrolytic zinc-coated sheet and strip steel will not peel, flake or powder even when subjected to the most severe fabricating operations. It keeps its coating intact throughout production.

By using Weirzin, you can avoid zinc deposits on forming dies, reduce die maintenance expense and increase die life. You can make better, more durable parts and products, because they will be fully protected by the uniform zinc coating both during and after fabrication.

Available in strips and cut lengths from  $\frac{3}{8}$ " to 35", in .008 to .037 gauges. Complete information about Weirzin and its possible uses supplied on request.

**WEIRTON**



**STEEL CO.**

WEIRTON, W. VA. Sales Offices in Principal Cities

Division of NATIONAL STEEL CORPORATION Executive Offices, Pittsburgh, Pa.



**to your Viking distributor**



**for  
distinguished service  
in your behalf**

Your Viking Distributor deserves special recognition for the splendid job he is doing in your behalf, for his unselfish cooperation in helping you to plan for a profitable future, for taking the load of material scheduling, inventory and delivery details from your shoulders, for advertising and selling assistance, for keeping an ever-watchful eye over your interests.

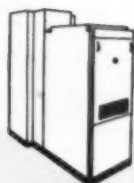
From now on his cooperation and services will be of even greater importance to your successful operation. Public pressure is forcing early clarification of the national housing picture. When the too-long delayed rush of modernization and new construction breaks, you will be in splendid position to meet a tremendous demand for VIKING heating, cooling and air-conditioning equipment.

Consult with your Viking Distributor regularly. Take full advantage of his advice and assistance during the busy months ahead.

*Write for details and the name of the Viking Distributor nearest you.*

**VIKING MFG. CORPORATION**

1747 CHESTER AVENUE • CLEVELAND, OHIO



Year 'round Air Conditioners



Floor Furnaces



Furnaces



Space Heaters



Boilers



Room Coolers



Vik-O-Matic Stokers



Utility Room Furnaces



Conversion Burners



Water Heaters

*Every Wheel Must Pass — with Honors —*

## **This PRECISION BALANCE TEST**



Freedom from  
Vibration



Extra Quiet  
Performance



Long Service  
Without Attention  
or Repairs

### **No Wonder So Many Manufacturers Furnish Clarage as Standard!**

Wheels in perfect balance are of utmost importance — if your blower units for heating and air conditioning are to give satisfactory, long-time service.

That's why we take such great pains with balancing operations here at Clarage Fan! Every wheel is tested on highly sensitive, electro-dynamic machines as shown above. *Both static and dynamic balance are obtained simultaneously — and to within precision limits.*

Yet accurate balance is but one of the many highly desirable features found in Clarage Blower Assemblies.

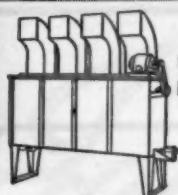
To meet your future requirements, it will most certainly pay you to investigate these fans.



Built in ten sizes  
in both types as  
illustrated — ca-  
pacities from 200  
to 7800 c.f.m. Or  
wheels only can  
be furnished in  
the same ten sizes.

Both types are suitable for  
V-belt or direct motor drive.

**SOME  
OF OUR  
OTHER  
PRODUCTS**

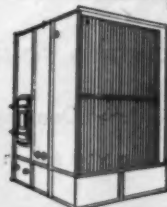
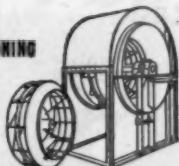


**UNIT  
HEATERS**



**CENTRAL STATION  
AIR CONDITIONING  
PLANTS**

**LARGE  
AIR CONDITIONING  
AND  
VENTILATING  
FANS**



**AIR  
WASHERS**

# **CLARAGE**

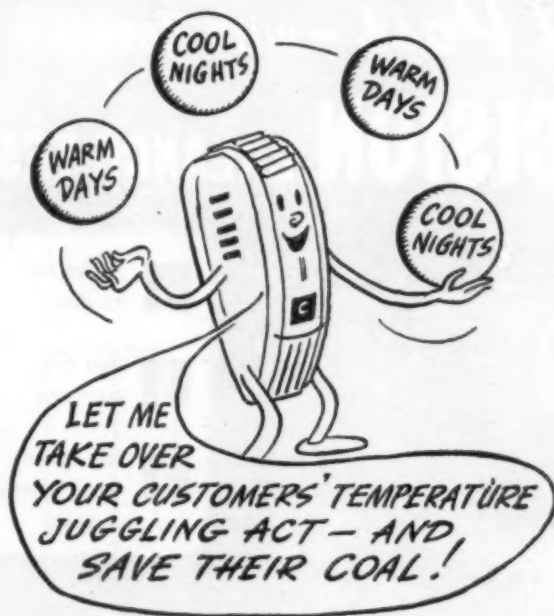
**FAN COMPANY**

Kalamazoo, Michigan

APPLICATION ENGINEERING OFFICES  
IN ALL PRINCIPAL CITIES







## NOW'S THE TIME

to put a Crise Quality Control on every customer's hand-fired furnace, whether it's steam, hot water or warm air. Conserve his coal supply during this season of changeable temperatures—he'll need the extra coal later!

## EASY TO INSTALL

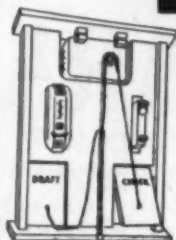
Engineered so they are simple, fast and easy to install—you can service more customers in less time.

## THERE'S BIG PROFIT IN CRISE

Crise Controls are priced to give you a generous margin of profit, yet they are not a luxury item. All your customers can afford a Crise Control.

## See Your Crise Jobber At Once

Executive Vice President



## CRISE DEALERS — BUILD YOUR SALES!

Ask your jobber about the Demonstration Panel he can get for you . . . It will help you sell in your shop and at the customer's home.

# YOU CAN GET *Uniform Temperatures*

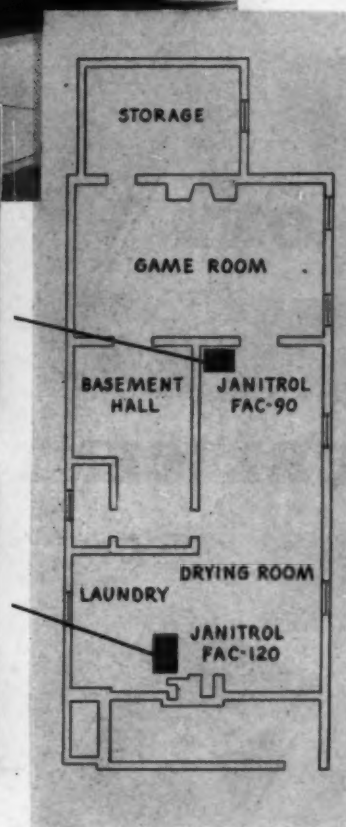
## IN LARGE HOMES . . . This Clean, Low-Cost Janitrol Way!



**H**ERE'S something that ought to be news but isn't. When a 90-foot long home has uniform temperatures throughout, even during high wind conditions, that would be *news* with most heating systems. But not with Janitrol. For the application of Janitrol Gas-Fired Winter Air Conditioners to get optimum heating results is the *everyday job* of the Janitrol heating engineer.

This home of P. C. McKenzie in Mt. Lebanon, Pa., for instance. To eliminate the need for extensive ductwork and place heat more directly where it is needed, *two* Janitrol furnaces were recommended—one in either end of the home. Results: reasonable installation cost, low fuel bills, and *solid, long-lasting heating comfort*. In the words of the owner—"We have enjoyed exceedingly uniform temperatures in this 90-foot long residence."

Whether you're planning to heat a large home like this one, a double home, a bungalow, or a small apartment, there's a Janitrol Gas Furnace for the job . . . and a Janitrol heating engineer who can help you select it. He may not be able to provide all the Janitrols you need now, but call upon him. He's anxious to help in any way he can.



SURFACE COMBUSTION CORPORATION, TOLEDO 1, OHIO

# Janitrol

**GAS-FIRED  
HEATING EQUIPMENT**



**SHREWD**

**BUYERS**

**ALWAYS**

**BUY THE**

**BEST**

**...THIS FACT**

**IS THE**

**ONE**

**REASON WHY**

**CRESCENT TOOLS**

**ARE KNOWN**

**EVERYWHERE AS  
"BEST SELLERS"**

**CRESCENT TOOLS**

*Give Wings to Work*

**CRESCENT TOOL COMPANY, Jamestown, N. Y.**



# For more heating comfort *at less cost...*

## RHEEM FLOOR FURNACES

**A model for every need is available  
in the service-tested Rheem line**

**R**HEEM FLOOR furnaces, built on the principle of gravity circulation, deliver the heat directly into the room without pipes; thus they eliminate waste heat and save on fuel bills.

Owners of Rheem floor furnaces find they get a uniform, evenly circulated heat, too. And they get it *safely*, because air for combustion is taken from under the house. All the healthful oxygen and humidity in the inside air are left undisturbed. Every Rheem floor furnace, as well as all other Rheem gas appliances, carries the Blue Star of Approval of the American Gas Association.

Features include heavy duty construction throughout . . . corrugated casing and liner to overcome "popping" caused by expansion and contraction . . . extra shallow depth which usually permits installation without concrete pits or steel pans . . . Pressure Regulator to insure even rate of gas flow and uniform combustion at all times.

All Rheem floor furnaces are available with either manual control or automatic thermostat control.

# RHEEM



**MANUFACTURING COMPANY**

Sales Offices

New York • San Francisco • Los Angeles • Chicago



Flat Floor Register Furnace — popular all-purpose unit . . . simple to install . . . comes in 3 sizes: 25000, 35000, and 50000 BTU input

Standard Dual Register Furnace — snug-fitting, extra efficient two-room unit. This model is available in two sizes — 35000 and 50000 BTU input

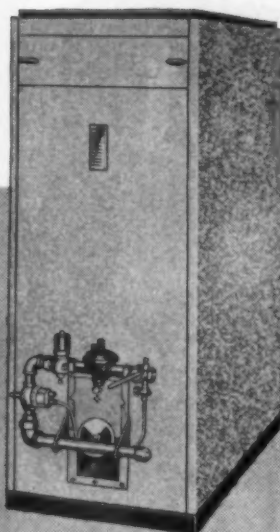
Cross Dual Register Furnace — compact furnace with regulating damper to assure perfect heat control either or both ways . . . 25000 and 35000 BTU input sizes available

# MONCRIEF'S

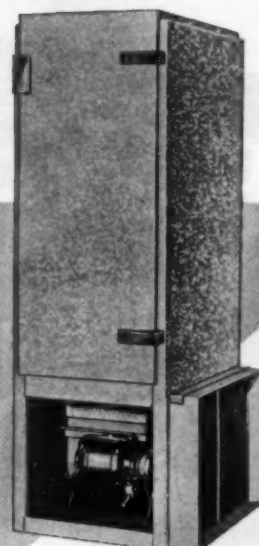
*New Automatic Gas Fired Equipment*



SERIES L  
GAS-FIRED, STEEL  
AIR CONDITIONING UNIT



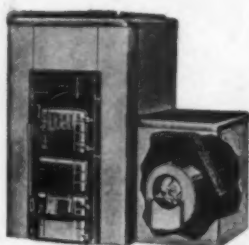
SERIES W  
GAS-FIRED, STEEL  
GRAVITY FURNACE



SERIES U  
GAS-FIRED, STEEL, UTILITY  
AIR CONDITIONING UNITS



SERIES 8000  
Oil-Fired, Steel  
Air Conditioning Unit



SERIES AG-700  
Coal-Fired, Steel  
Air Conditioning Unit

*will still be*  
**"YEARS AHEAD"**  
*in Years to Come!*

Be a dealer that can say, "Yes, this Moncrief Gas-Fired equipment today is just as up-to-date—just as modern and efficient as many makes will be in the years to come". It's quite a statement—but we believe you can make it with Moncrief.

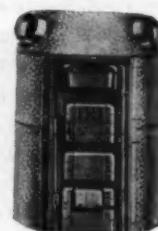
Today, you can sell the greatest line of automatic, gas-fired equipment that Moncrief has ever introduced in their more than 50 years in the manufacturing of outstanding heating equipment.

These new 1946 units abound in distinctive features—Moncrief features. Features that gain immediate eye appeal—buy appeal.

**THE HENRY FURNACE CO.**  
MEDINA, OHIO



SERIES 700  
Coal-Fired, Steel  
Gravity Furnace

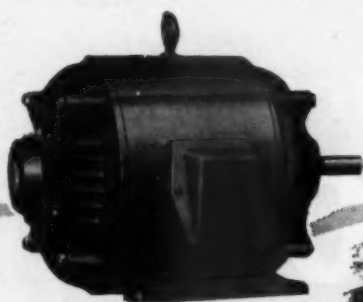


SERIES 600  
Coal-Fired, Steel  
Gravity Furnace

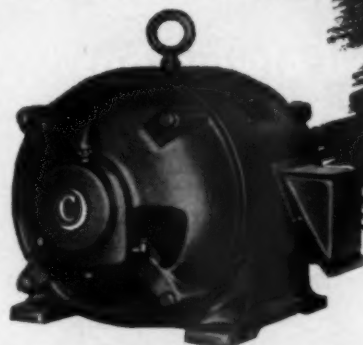


SERIES C  
Coal-Fired, Cast  
Iron Gravity Furnace

**You Increase Customer Good-Will When You**



Type RS Repulsion Start Induction  
Brush Lifting Single Phase Motor.  
Built in sizes 1/3 to 20 Horsepower



Type SC Squirrel Cage Induction  
Three Phase Motor.  
Built in sizes 1/6 to 600 Horsepower



Type DN Direct Current Motor  
Built in sizes 1/20 to 300 Horsepower



Type CSH Capacitor Start  
Induction Motor  
Built in sizes 1/20 to 20 Horsepower



## Select Quiet **CENTURY MOTORS** for **Air-Conditioning!**

**T**here's a complete line of Century motors to meet every air conditioning application. There are many good reasons why Century motors are widely used throughout the air conditioning industry. Here are a few of them: close tolerances on all moving parts, freedom from electrical and mechanical vibration, unique bearing bumpers that reduce chatter from V-belt irregularities.

Century offers motors for these air conditioning applications — refrigeration compressors, unit heaters, blowers, pumps, stokers.

**These are the types from which  
you may choose:**

Single Phase  
Polyphase  
Direct Current

Vertical  
Horizontal

Open  
Totally Enclosed  
Dust Proof

Drip Proof  
Splash Proof  
Explosion Proof

Cushion Mounting  
Rigid Mounting

Ball Bearing  
Sleeve Bearing

Find out today how the smooth operation, protective insulation, rigid construction, and many other features work together to give your customers more satisfaction through more comfortable air conditioning. Call in a Century engineer.

**CENTURY ELECTRIC COMPANY, 1806 Pine Street, St. Louis 3, Missouri**

*Offices and Stock Points in Principal Cities*

412



# Here are the reasons why **STOKOL STOKER** **IS A LEADER**


**FIRST** . . . The Stokol policy is, and always has been, to give the American public the best stoker.

**SECOND** . . . The Stokol policy is, and always has been, to give dealers and salesmen opportunity to make a fair profit.



The result of this policy is that Stokol has 140,000 users, and the product has public acceptance wherever coal is used. Today this prestige is paying greater dividends than ever before, and it will continue to do so. Stokol today has the greatest stoker line in its history—a large variety of domestic, commercial and industrial models, a wide range of sizes, stokers for all types of coal. It has the facilities and the materials for mass production, and volume production has been underway for months. Stokol dealers have a bright future. Investigate the possibilities for you—mail the coupon today. Stokol Stoker Company, Inc., Indianapolis 7, Indiana.

**JOIN A LEADER — Mail This Today!**

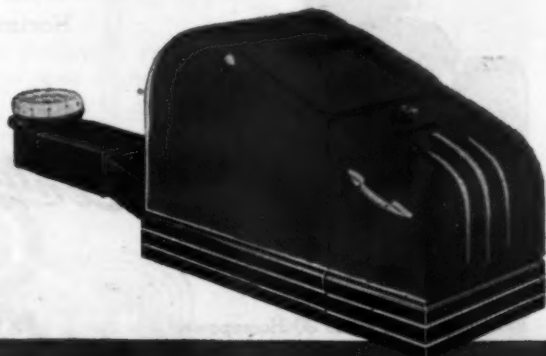
**STOKOL  STOKER CO., INC.**  
1145 E. 22ND ST., INDIANAPOLIS 7, IND.

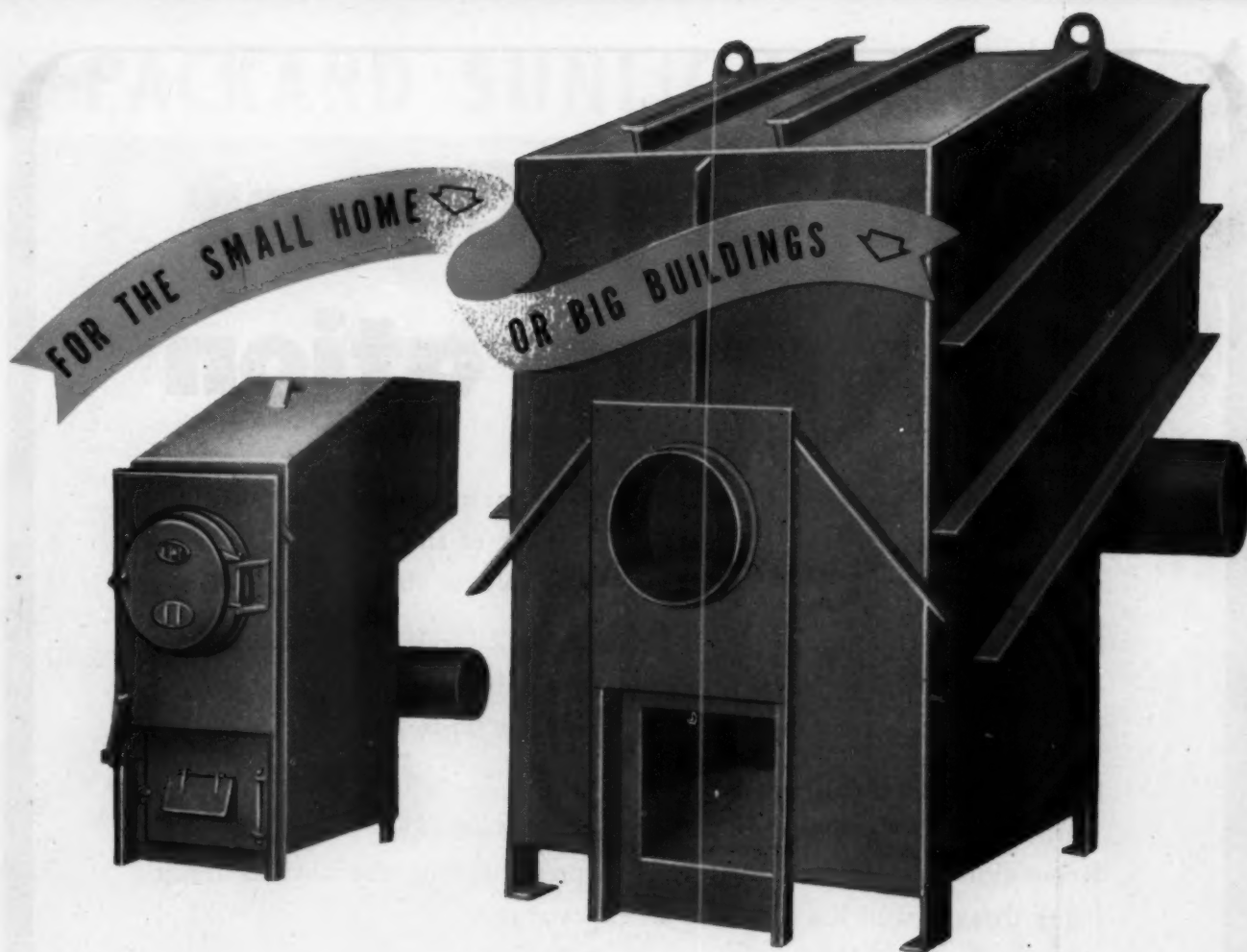
Gentlemen: Send details of Stokol profit possibilities for me as a dealer.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

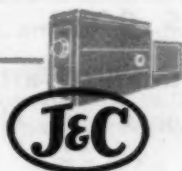
CITY \_\_\_\_\_ STATE \_\_\_\_\_





## J & C POWER FURNACES DO A LOW-COST, EFFICIENT JOB OF HEATING...

Whether it is a 160,000 BTU Unit or a larger one of 2,800,000 or over, you will find the same careful engineering in all J & C Power Heaters. Whether the fuel burned be coal, gas, or oil, they are designed to do an efficient job of heating. Some models can be converted from coal to gas or oil, an advantage which may be appreciated, while the large units are readily adaptable to mechanical firing. Blower systems adapted to each particular unit provide a constant circulation of clean, warm air from the adequate radiation surface. For long life heating with a minimum maintenance rely on J & C Power Heaters. "Work Well Done Since Eighty-One."



JACKSON AND CHURCH CO., SAGINAW, MICHIGAN  
ESTABLISHED 1881

# You Can Count on Cooperation

**The demand** for Toridheet burners and equipment including our "package" units is greater than at any time in the history of this Company. We do not say this boastfully but with a deep sense of the obligations it creates.

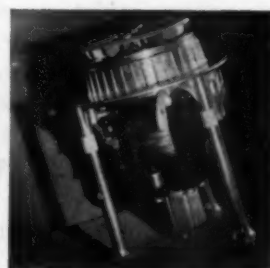
**Frankly**, our plans for reconversion were well developed, and if all the conditions related to conversion were as favorable as the sales outlook, we would be much happier—and so would all those who are depending upon us!

**Never has the recognition** of what has been accomplished in perfecting Toridheet Oil Burners, with their distinctive advantages, been higher. Reputation built on performance has spread widely, the obvious result being that demand has exceeded all expectations.

**You can count on** the fact that we are treating all our customers with the same absolute fairness that has characterized our long history. When we get a "break" you will get a break. Meantime, we ask your indulgence. Thanks for your friendly patience.



Model 5



Rotary Burner

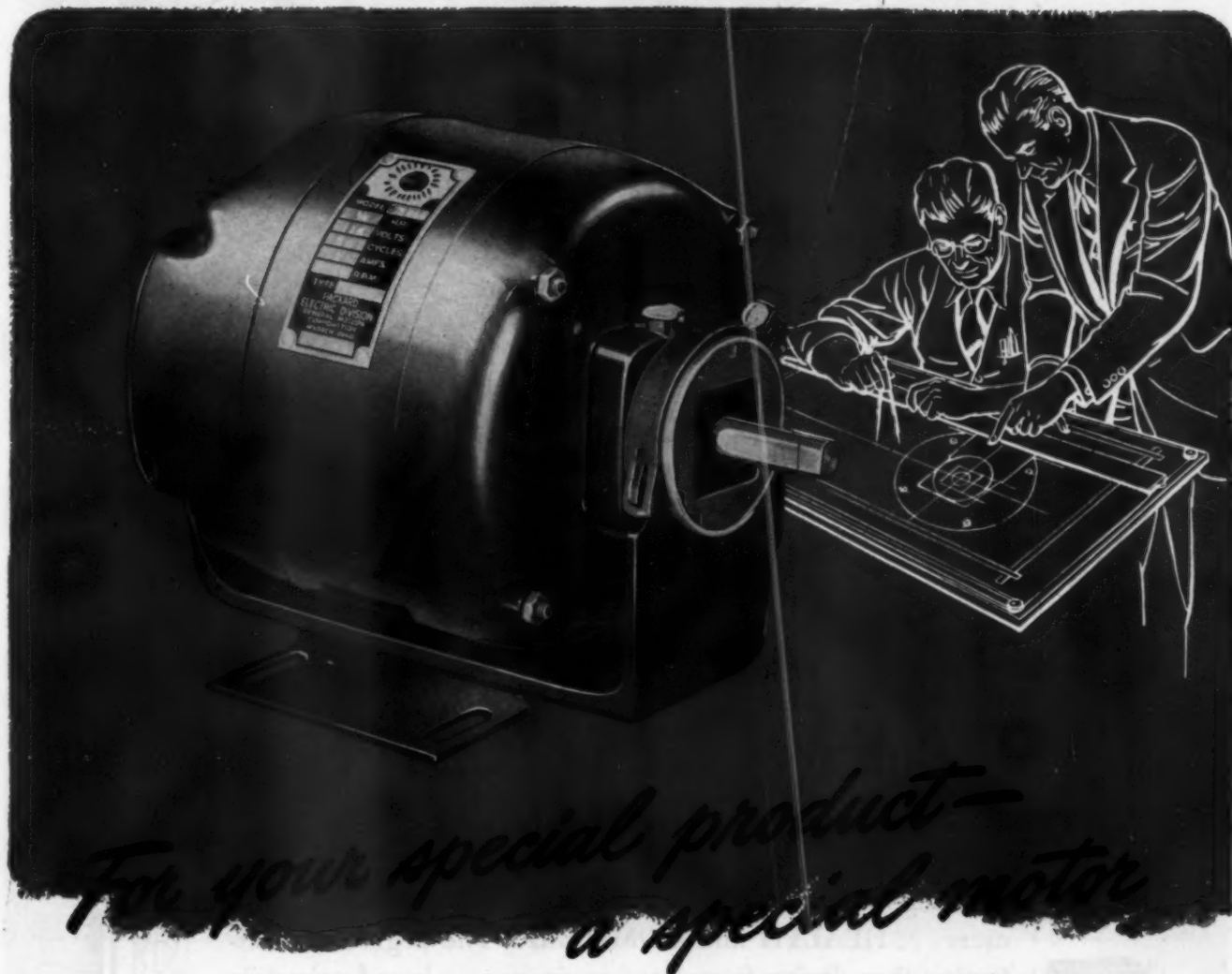
## TORIDHEET DIVISION

CLEVELAND STEEL PRODUCTS CORP. • CLEVELAND 2, OHIO

*Oil Burners • Air Conditioning Units • Oil-Burner Boilers  
Coal and Gas Furnaces • Oil Water Heaters*



# PACKARD SUNLIGHT MOTORS



*For your special product—  
a special motor*

If you plan to produce a motor-powered\* product in volume, you may be able to use—and may need—a specially designed motor.

Better “fit” for designed space, correct starting and operating torques—the right construction for the job . . . these advantages are secured when a motor is designed individually for the product. And volume production keeps the cost down.

Packard Electric engineers can help you determine the proper motor for your product . . . can design the motor that will keep your customers satisfied with product performance. With extensive facili-

ties for precision manufacturing of appliance motors, Packard Electric can also mass-produce it for you at low cost.

Like all Packard Sunlight motors, it would have inherent quality features that insure sound, long-lived operation: adequate torque to handle starting and operating loads; self-oiling, cast bronze journals to reduce friction and minimize service needs; copper wire of proper gauge for motor capacity; and extra-heavy coatings of insulation to guard against short-circuits.

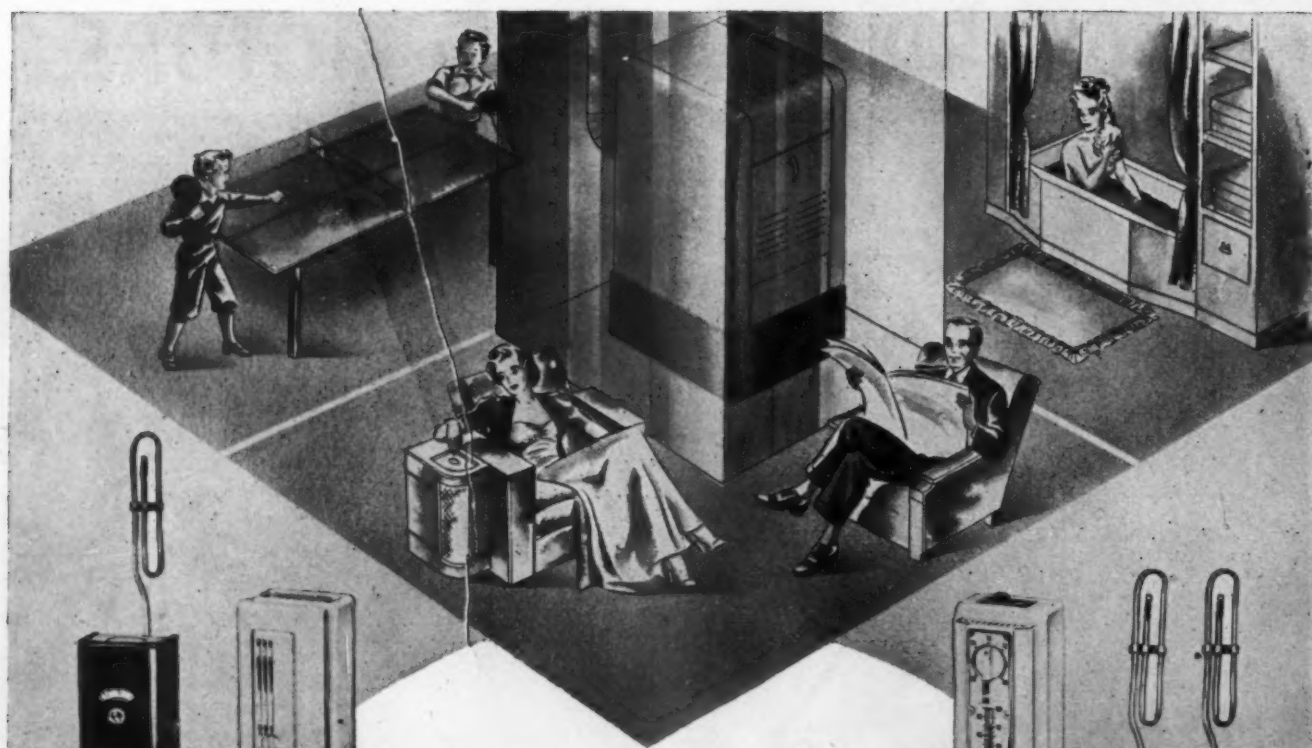
If you have a motor problem, let Packard design a motor to do the job better.

*Packard*  
REG. U.S. PAT. OFF.  
TRADE MARK

Packard Electric Division, General Motors Corporation, Warren, Ohio

**PACKARD SUNLIGHT MOTORS for: compressors . . . washing machines . . . power-driven bench tools . . . ironers . . . milk separators . . . milking machines . . . furnace blowers . . . stokers . . . oil burners . . . water pumps . . . ventilators . . . and many other applications.**

**DEPENDABLE APPLIANCE MOTORS FOR TWENTY-NINE YEARS**



## WHITE-RODGERS Controls Insure COMFORT in your buildings

Heating and air-conditioning mean just one thing to most users . . . HEALTH and COMFORT. The degree of satisfaction they derive from your equipment is based primarily on its performance. Let the unusual accuracy and dependability of White-Rodgers automatic controls insure the HEALTH and COMFORT built into your equipment. Write today for catalog and installation data.

**WHITE-RODGERS ELECTRIC CO.**

ST. LOUIS 6, MISSOURI

*Controls for Refrigeration • Heating  
Air Conditioning*





... The Average Family of Four

Doesn't Need a Home Like This ..

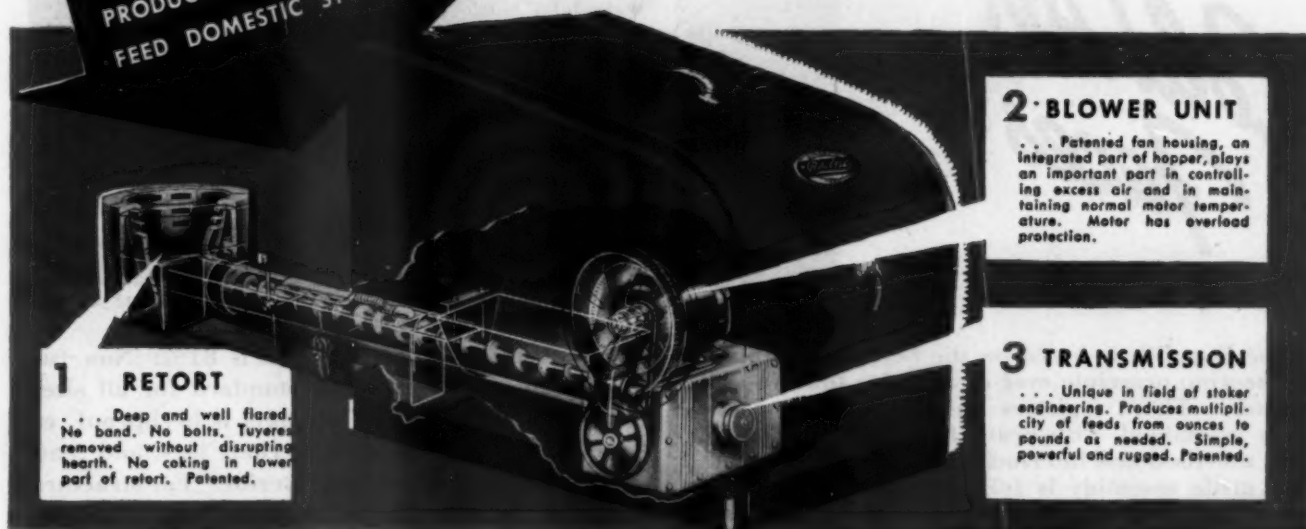


Any more than they need a BIG stoker

**THREE**

OUTSTANDING "RACINE"  
PERFORMANCE FEATURES  
DELIVER GREATEST COM-  
BUSTION EFFICIENCY EVER  
PRODUCED IN AN UNDER-  
FEED DOMESTIC STOKER

RACINE'S principle of liberating heat at approximately the same rate at which heat losses occur from the house to the atmosphere is unique in the field of domestic stoker engineering.



### 1 RETORT

... Deep and well flared. No band. No bolts. Tuyeres removed without disrupting hearth. No coking in lower part of retort. Patented.

### 2 BLOWER UNIT

... Patented fan housing, an integrated part of hopper, plays an important part in controlling excess air and in maintaining normal motor temperature. Motor has overload protection.

### 3 TRANSMISSION

... Unique in field of stoker engineering. Produces multiplicity of feeds from ounces to pounds as needed. Simple, powerful and rugged. Patented.

## MIDWEST TEST PROVES ECONOMY AND EFFICIENCY OF "RACINE" OPERATION

Record for Dec. 1, 1945 to Feb. 1, 1946. An 8 room house, average construction with open stairway. Exposed all around. Outside temperatures varied from -14° to 50° with an average of approximately 23.6°.

Coal consumed was 6991 lbs. or an average of slightly less than 5 lbs. per hour, with thermostat set at 74°. Thermometer didn't vary more than 2°. Fuel feed was set at 5 lbs. per hour, increased during zero-wave to 7½ lbs. Stoker ran an average of 40 minutes per hour.

Proof that good heating depends mainly on a continuous flow of heat, sufficient to meet heat requirements but not to exceed them, is found in this and many other "Racine" installations. Feeding small amounts of coal plus controlled low draft, produces and releases heat evenly and consistently. By controlling excess air, fly ash settles into clinker residue. Cleanliness, quietness and economy are outstanding "Racine" features.

## Interchangeable Parts and Service

Transmission is the same in all models from 10D10 to 60C14. Variable feed rates accomplished by simply changing eccentric cam. The "Racine" stoker can be serviced with a very small parts department.

...

## Domestic and Small Commercial Models

Model 10D10 for 4 to 6 room homes, using up to 8 tons coal per season.

Model 20C14 for homes or buildings, using from 10 to 15 tons coal per season.

Model 15D10 for 7 to 8 room homes, using from 8 to 10 tons coal per season.

Model 30C14 for homes or buildings, using from 15 to 20 tons coal per season.

Model 15C14 for 7 to 8 room homes, using from 8 to 10 tons coal per season.

Model 60C14 for homes or buildings, using from 20 to 35 tons coal per season.

...

Exclusive Dealerships still available to dealers who are interested in the heating welfare of the home owner.



**NELSON BROS. and STROM CO. .RACINE, WIS.**



SUPER STRENGTH

# DURABILT

*Floor  
Registers  
and  
Cold Air  
Faces*

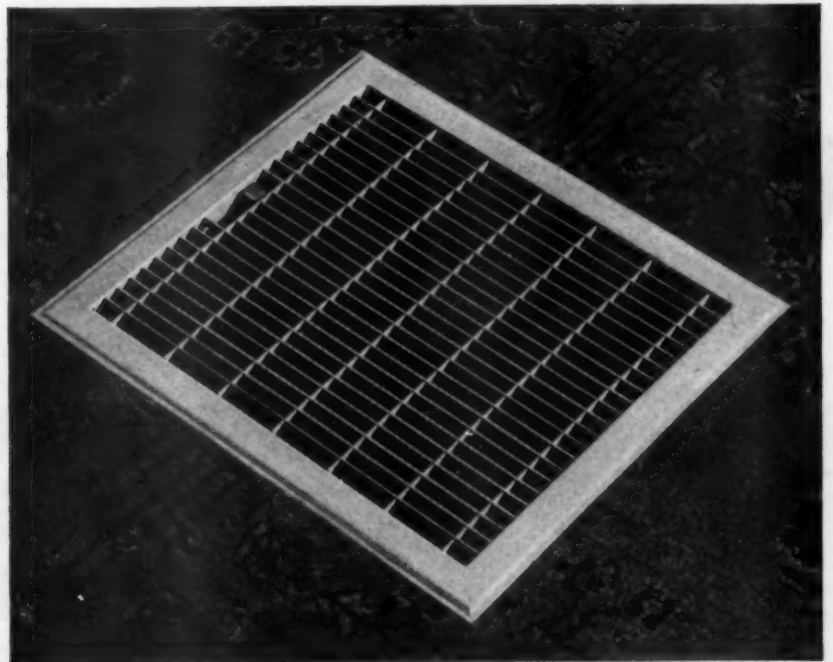
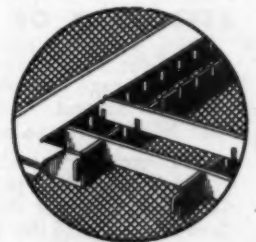
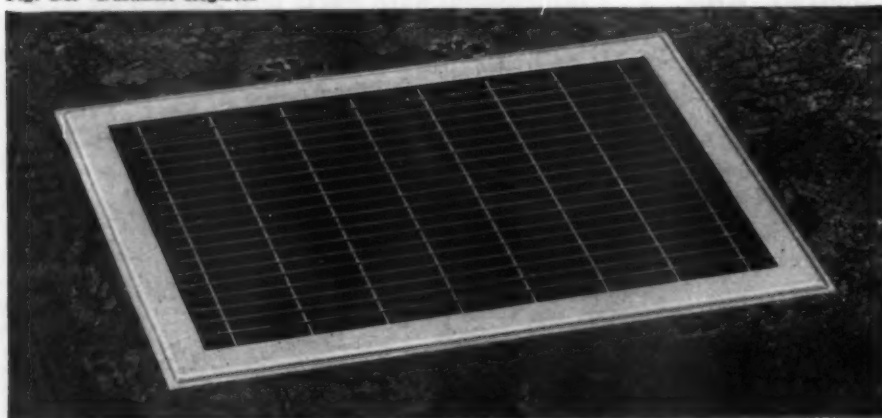


Fig. DSC—DuraBilt Cold Air Face

The DuraBilt is based on the best and simplest engineering principle ever devised for this type of register. These registers and intakes are accurately assembled, with heavy flat steel rolled-edge bars, mortised and interlocked at every cross-joint. This grille assembly is forced together on press, and is tenoned and locked tightly into welded and reinforced frame, making a highly rigid and dur-

able construction. Open area is 81%. Now furnished in narrow mesh as standard for all sizes. The 7/16" by 1-15/16" opening is heel-proof, excludes small objects such as chair legs, and tends to conceal the register box interior. For structural strength far beyond the requirements of normal service—use DuraBilt Registers and Intakes.

Fig. DR—DuraBilt Register



Write for complete Auer Register Book illustrating and listing all types and models for both air conditioning and warm air systems. Special Grille Catalog "G" also sent on request.

The Auer Register Co., 3608 Payne Ave., Cleveland 14, Ohio

*Auer*

## REGISTERS

& GRILLES for AIR CONDITIONING & GRAVITY



**Trademark** OF THE FINEST

**HEATING AND AIR CONDITIONING CONTROLS**

**Friez** INSTRUMENT DIVISION

BALTIMORE 4, MARYLAND



# Allegheny Stainless In Ryerson Stock

Need stainless steel? Allegheny Stainless in a wide variety of shapes, sizes and finishes is in Ryerson stock, ready for prompt shipment.

Included are: sheets, strip, plates, bars including rounds, squares and hexagons, tubing and pipe, both seamless and welded types. Also stainless pipe fittings, welding flanges, welding rod, bolts, rivets, washers, etc.

While stocks are unbalanced in some sizes and deliveries not always up to fast Ryerson standards because of the great demand, your requirements can usually be met promptly.

The uniform, high quality of Allegheny Metal—finest of stainless steels, plus the expert counsel of Ryerson metallurgists and stainless steel specialists, make Ryerson the practical source for stainless from stock.

For complete information consult the Ryerson Stock List and Steel Data Book.

## LARGE ALLOY STOCKS

Hot rolled and cold finished, normalized, annealed, heat treated—in a wide range of analyses and sizes. Test data and heat treating information furnished on every alloy in every shipment from stock.

## JOSEPH T. RYERSON & SON, INC.

Steel-Service Plants at Chicago, Milwaukee, St. Louis, Cleveland, Cincinnati, Pittsburgh, Philadelphia, Detroit, Buffalo, Boston, New York

# RYERSON STEEL





## Are We Doing a Poor Job on Apprentices?

**A**T THE Michigan state association convention, Tom Ross, who is in charge of apprenticeship training in Michigan, leveled an accusing finger at the sheet metal industry. "No craft in Michigan," he declared, "has done a poorer job of starting an apprenticeship training program than have the sheet metal contractors."

He should know whereof he speaks. It is his job to know everything that is going on in apprenticeship training in his state.

We wonder if the same accusation can be made against the sheet metal industry in other states. If so, then it is high time this industry aroused itself.

### **The G.I. Program**

This publication assumes that most sheet metal contractors (and, of course, this means warm air heating dealers also) are familiar with the provisions of the G.I. apprenticeship training program. In a few words, the G.I. bill says a sheet metal shop may apply to the state Board of Education for approval as a shop to train apprentices. Having been approved, the shop hires a G.I. apprentice and trains him for four years. The veteran must also go to vocational school or must take an approved course of schooling (may be correspondence course). The shop pays the G.I. a wage in keeping with the apprentice's knowledge or training. Then the government also pay the G.I. \$65 a month if single or more if married, so that, in total, the G.I. gets a wage high enough to satisfy him and support him.

Surely there could be no fairer plan than this.

The shop owner gets a full grown man—a man with a full adult's point of view—probably the cream of the veterans—at a wage the owner used to pay for a 17 year old kid.

The sheet metal industry has been screaming for years that "we don't have the good old time mechanics any more." We have been shouting from the housetops that mechanics these last ten years don't know enough to come in out of the rain.

True or not, the fact is that NOW, through this G.I. bill, our industry has laid in our lap the finest opportunity to train good men that has ever been pre-

sented to any industry. The manpower waiting to be trained is far superior to anything we have ever had. The government is paying part of the cost of training these men.

Here is a chance to make good manpower into excellent mechanics so that, for twenty years to come, there need be no reason for yelling about poor mechanics. With this training program handed to us, we will have only ourselves to blame if, twenty years from now, our mechanics are the poor quality we've been talking about for the last ten years.

BUT, are employers accepting the opportunity? Tom Ross says no. Washington says no. Washington says, the sheet metal trade needs 5,000 apprentices in training right now. Our own industry, speaking through local and state associations, admits hundreds of apprentices should be in training now to insure a plentiful supply of skilled labor for the boom years to follow.

### **Organized Labor Favors Training**

By and large, organized labor is going more than half way to aid employers to get and train G.I.'s. This publication has heard of only one or two instances where the local business agent has prohibited the employment of as many apprentices as the employers asked. It is almost certain that the labor relations committee of the Sheet Metal Contractors National Association, when it meets with the committee appointed by labor in St. Louis in May, can straighten out the few spots where there is any argument.

So, here the industry sits. If we really want the number of mechanics we claim we need; if we want the high type of trained mechanics we have so long asked for; if we want continued prosperity through several years of profitable and volume business—now is the time to make the plans and put those plans into operation.

This is a proposition tailor-made for association cooperation and effort. Working as associations, shop training programs can be set up to get practically blanket approval from state Boards of Education. Working as associations, schools can be set up where no school was possible before.

Let's not miss the boat.

# Oil Heating Convention and Exposition

**T**HE Oil-Heat Institute's 23rd Annual Convention in Philadelphia in conjunction with the National Oil Heat Exposition, April 23-27, shows every indication of a new high water mark in the Institute's history for discussion panels, speakers and entertainment for the several thousand trade representatives who will attend.

Most of the convention activities will be held at the Ben Franklin Hotel, which will be used as OHI headquarters. They will be dovetailed into each day so as to interfere as little as possible with plans of industry members to attend the exposition.

While the Exposition does not open until Tuesday, April 23, the business of OHI necessitates meetings of OHI directors and of directors of the Distribution and Accessory Divisions on Monday, April 22. The annual meetings of these two divisions will be held on the morning of Tuesday, April 23, in advance of the Exposition opening.

The National Oil Heat Exposition at Commercial Museum will be opened with appropriate ceremonies at 1:30 o'clock, Tuesday afternoon.

The Exposition will remain open until 10 o'clock, Tuesday evening, and will be open daily from 1:30 P.M. to 10 P.M. through Saturday, April 27, except for Thursday evening, when it will be closed to permit all present to attend the annual OHI banquet.

## Annual Meeting OHI

The annual meeting of OHI will be held Wednesday morning at 10 o'clock. The president's annual report and reports of other officers and of committees will be heard, followed by the election of new directors.

At noon the new directors will meet to transact business, including the election of new officers and members of the Executive Committee.

At 2 P.M. the new directors of the Distribution Division and of the Accessory Division will hold separate meetings.

## Retail Sales Session

Arrangements are well under way for a fine Retail Sales Session which will be held Thursday morning, with C. R. Jonswold, chairman of the Distribution Division of OHI, in charge.

A feature of the meeting will be a "sales clinic" or discussion panel. Headliners in their fields are being invited to discuss the following subjects: Sales and promotion, finance, new home construction, and fuel oil.

The annual OHI banquet will be held Thursday evening at the Ben Franklin. Plans provide for only brief addresses by President Matheson and prominent guests, and the early start of a very fine entertainment program which will be something the ladies and men in attendance will not soon forget.

What should prove to be a very instructive and interesting session has been arranged for Friday morning, with W. A. Kemp, Chairman of the Accessory Division, OHI, in charge. It is called "The Industry Looks at Itself" and will comprise a panel discussion on subjects pertinent to the industry.

## Engineering Session

On Friday afternoon there will be an Engineering session, with F. H. Faust, Chairman of the Engineering Committee, OHI, in charge.

# Exhibitors

ABC Oil & Burner Co., Inc.  
Ace Engineering Company  
Aldrich Company  
American Artisan  
American Stove Company  
Anchor Post Fence Company  
Applied Mechanics Company  
Auto-Heat Corporation  
Automatic Burner Corporation  
Bacharach Industrial Instrument Company  
Bell & Gossett Company  
Bethlehem Foundry & Machine Company  
Burnham Boiler Corporation  
Century Engineering Corporation  
Chrysler Corp., Airtemp Division  
Cleaver-Brooks Company  
The Coleman Company, Inc. of Pa.  
Columbia Boiler Company  
Combustion Utilities Corporation  
Commercial Filters Corporation  
H. D. Conkey & Company  
Field Control Division

C-S Brass Manufacturing Company, Inc.  
Delavan Manufacturing Company  
Delco Appliance Div., General Motors Corp.  
Dielectric Products Company, Inc.  
The Dole Valve Company  
Domestic Engineering Company  
Dongan Electric Manufacturing Company  
Duo-Therm Division, Motor Wheel Corporation  
F. W. Dwyer Manufacturing Company  
Eckhart Manufacturing Company  
Eddington Metal Specialty Company  
Electrol Burner Manufacturing Co., Inc.  
Fitzgibbons Boiler Company, Inc.  
Friez Instrument Div., Bendix Aviation Corp.  
Fueloil & Oil Heat  
Fuel Oil News  
Gar Wood Industries, Inc.  
General Electric Company  
General Filters, Inc.  
General Fittings Company  
General Utilities Corporation  
Gerstein and Cooper Company



Guardian Utilities Company  
 Gulf Oil Corporation  
 Harvey-Whipple, Inc.  
 The Heil Company  
 Herco Oil Burner Corporation  
 Iron Fireman Manufacturing Company  
 Jefferson Electric Company  
 S. T. Johnson Company  
 Kresno-Stamm Manufacturing Company  
 The Lau Blower Company  
 Lovejoy Flexible Coupling Company  
 May Oil Burner Div., Gerotor May Corporation  
 McDonnell & Miller  
 Measurement Methods Company  
 The Mercoid Corporation  
 Michigan Tank & Furnace Corporation  
 The Miller Company  
 Minneapolis Honeywell Regulator Company  
 Monarch Manufacturing Works, Inc.  
 Morrison Products, Inc.  
 Morse, Lockhart & Morse, Inc.  
 National Airoil Burner Company  
 National Oil Burner Company  
 Oil-Heat Institute of New England  
 Owens-Corning Fiberglas Corporation  
 Penn Boiler & Burner Manufacturing Corporation  
 Penn Electric Switch Company  
 Perfex Corporation  
 Petrol Corporation  
 Petroleum Equipment Mfg. Company  
 Petroleum Heat and Power Company  
 Petroleum Solvents Corporation  
 Petrometer Corporation  
 Pezzillo Pump Company

Plumbing & Heating Journal  
 Preferred Utilities Manufacturing Corporation  
 Quaker Manufacturing Company  
 Quiet Heat Manufacturing Corporation  
 Radiant Utilities Corporation  
 The Rajah Company  
 Ray Oil Burner Company  
 C. L. Rayfield Company  
 Rochester Manufacturing Company  
 Scully Signal Company  
 Shell Oil Company, Inc.  
 Sid Harvey, Inc.  
 The Silent Glow Oil Burner Corporation  
 Socony-Vacuum Oil Company, Inc.  
 Sundstrand Machine Tool Company  
 Taco Heaters, Inc.  
 Thatcher Furnace Company  
 Timken Silent Automatic Div.,  
 The Timken-Detroit Axle Company  
 The Torrington Manufacturing Company  
 The Triplex Heating Specialty Company  
 Tuthill Pump Company  
 Viking Air Conditioning Corporation  
 The Viking Manufacturing Corporation  
 Waterfilm Boilers, Inc.  
 Watts Regulator Company  
 Weather Controls Div., Automatic Devices  
 Web Vapor Burner, Inc.  
 Webster Authorized Service Stations  
 Webster Electric Company  
 Williams Oil-O-Matic Div.,  
 Eureka Vacuum Cleaner Company  
 York-Shipley, Inc.

## Space Heaters Inefficient

**T**HAT there will be disappointments among small home owners who buy or have coal burning space heaters of the so-called "magazine" type is indicated in a paper by R. C. Cross and H. N. Ostburg presented at the January A.S.H.V.E. meeting. This paper, "A Study of Several Coal-fired, Magazine-feed Space Heaters," shows:

1. There is considerable variation in the capacities and efficiencies of coal-fired magazine feed heaters of similar external dimensions. Five of the ten heaters tested failed to meet the 50 percent efficiency rating stipulated in Bureau of Standards TS-3443, Proposed Commercial Standard for Coal-burning Space Heaters.

2. High flue gas temperatures, and excessive losses in the dry flue gas indicate a general lack of sufficient flue travel and secondary heating surface.

3. The majority of the heaters operated with low CO<sub>2</sub> and high excess air in the flue gases. These heaters were provided with various methods of introducing secondary air; it would appear that these methods are not too successful.

4. Superior efficiency was shown by the heaters utilizing the cross-feed, and the underfeed method of burning. In the case of the underfeed heater, however, the serious smoke-back nullified the general performance advantage.

5. The average attention period encountered in the heaters tested was approximately 18 hours. This is a satisfactory value for achievement at rated output, TS-3443 stipulating a minimum attention period of 12 hours.

6. With those heaters provided with secondary air admission the smoke produced, when high-volatile fuel was used, was not excessive, except for the period immediately following the charging of fuel.

7. In general, the heaters reacted positively to changes in draft, and primary air damper setting.

8. The heater using the underfeed principle of burning showed a serious fault in strong smoke-back when the magazine charging door was opened. A fair amount of smoke-back was experienced with the cross-feed heaters.

## Misleading Pre-fab Ads

**N**EW YORK newspapers recently carried full page department store advertising featuring prefab houses. Smartly tying in with the current national interest in housing for vets, the Gimbels' store ad features a \$2,399 cost for a 24 ft. by 23 ft. four room, wallboard house (\$1,899 for house; \$500 for bathroom, kitchen sink, hot water heater, range and space heater).

The ad said: "Purchaser supplies lot, foundation, chimney, roofing, wiring and labor of plumber, electrician and workmen needed to erect house. "What a surprise the owner will get when he finds that another \$1,500 to \$2,000 must be spent before he can live in the house (if he has a lot).



Arnold Kruckman's

## Washington Letter



### Heating Equipment Situation is Confused

THEY call them *Directions* now, not Orders nor Regulations nor Directives. The theory probably is that a "Direction" sounds less mandatory than the more imperative words, whose definition, as parts of speech, is increasingly difficult in order to give them their proper grammatical classifications, particularly if grammar is not a strong quality. Incidentally, any wide reading of current journalistic reports or more high-toned literary products lead one to the inevitable conclusion that the formalisms of diction also have been among the heavy casualties of war. When you get into the more abstract realm of recondite official Government communications, the obvious effort to avoid clear statement often arouses pure admiration for the prestidigatory feats that can be done with words, and combinations of words, and the new coinage of words, to dodge an issue. There is a comment going the rounds here that you can easily understand most of this Federal gobbledehoy if you can get a translation from the original Academic or Sanskrit or Hebrew.

The present outbreak patently reflects the unhappiness of the majority of sincere and earnest officials who are impelled by the existing situation to grope around in a fog of confusion and distressing unsureness. They tell you they are still working on an hour to hour or day to day basis. They do not expect the mists to clear away for at least 60 days—May or June—and we know here such an estimate usually should be expanded.

#### "Critical" Listing—Not Yet

We have been waiting weeks for that *Direction* which will enable Morgan N. Johnston, of CPA, to help the warm air furnace industry to get materials and equipment. Johnston expected it with complete confidence six or eight weeks ago. It may be issued tomorrow or it may be issued next month. It is literally true that no one knows, because no one particular person has the last special responsibility of saying the final word. The lack of any sharp decisiveness about these matters on the part of Capt. J. D. Small, U. S. N. R., and the brass in his immediate level makes the rest of the staff all along the line reluctant to act. In happier days they used to say in Boston that the Lodges spoke to the Cabots and the Cabots spoke to God. Down here we are quite certain the Smalls speak

to the White House, but we don't know to whom the White House speaks.

#### How "Critical" Will Work

There will be two Directions when whatever may happen actually happens. One will enable Morgan Johnston to specify that CPA has classified materials required by the warm air furnace industry as "critical," and that the warm air furnace industry, therefore, has a preferential priority for the needs of furnaces, registers, blowers, ducts and piping. Other components may be included, but the exact detailed specification is not available.

Of course, everyone knows that, with some few exceptions, the manufacturers of furnaces desperately need sheet steel and other iron products. We hear that some factories have closed or are on the brink of closing for the lack of metal. But the impending direction *does not enable CPA Heating Section to require the steel mills to give furnace manufacturers preferred supplies of sheet steel*. It is hoped that steel may be forced out of the mills by cooperation between the CPA Heating Section and the CPA Steel Section; we know both are willing to help. The trouble is that cooperation, without the authority to get tough, does not go far under existing circumstances. There is no penalty for the mill that says it will not comply.

Your friends in the Section of CPA closest to your interests say that an adjustment will soon be made which will give the Heating Section the direct authority to force compliance with its steel ratings. You may be certain your friends are vigorously doing everything that the peculiarities of Government and politics permit them to do to get you steel and other preferences.

#### PR-28 Is Key Order

Morgan N. Johnston, as Chief of the CPA Heating Section, will be the Administrator of the Directions whenever they happen. Most of his work will be concerned with the Direction that applies to PR-28. This is the regulation under which the manufacturers of furnaces will be able to obtain materials and parts to expedite production. Johnston's job will be to help them get the ratings and thereafter to help them get the parts and materials. If they cannot pry the stuff loose by their own efforts, the field workers of CPA will be on hand to help. Congress, as predicted in

these columns, has again reversed itself and provided the funds to hire the field force.

There is absolutely no doubt that CPA will still be going strong 16 months from now. It scares Capt. Small and his associates into paralyzed silence when anyone says this aloud in their hearing. They are afraid even the utterance of the perfectly logical and inevitable thought will raise from the hinterland a tremendous uproar about the need to abolish immediately all controls and will stampede Congress into another recession of funds.

It is axiomatic here that Congress is never less than three months behind the trend of the country, but in WPB days we found that the keen and swiftly decisive men from industry either were right in step or slightly ahead of the trends. CPA brass, however, is so timid that it is, if anything, slower than Congress. As the result of George Boeddener's advice to the furnace manufacturers, CPA is fully informed about its pressing needs.

### **"Controls" Are Not Feared**

Also, there are in the files of CPA innumerable letters and memoranda which reveal that industry in general, by the thousands, is willing to accept any reasonable regulation and control which will bring about a more balanced distribution of the materials and the things that now create paralyzing bottlenecks. There may be a lot of conversation about the evils of controls, price, wage, and otherwise, but we usually find here that the most vocal conversationalists get a morbid picture when they look upon these things as they apply the colors to their own industry and are vociferously eager that every imaginable control should be placed upon everybody else's industry. In other words, almost everybody is for controls except that many are not for controls for themselves.

It is very much like the situation which confronted the President recently when he had to find a successor to Ickes. Practically every Congressional delegation had a favorite son for the job of Secretary of the Interior; there were a total of 52 suggestions. But, at the same time, the overwhelming majority suggested Senator O'Mahoney of Wyoming as a second choice. They all clamored to have their own man appointed to the job, but agreed practically unanimously but not formally that O'Mahoney was the man for the job. The result has a significant meaning. The turmoil and the conflicts and the general confusion had the seed of so much political dynamite that the President finally went far afield and chose the dark horse, J. A. Krug. Incidentally, Krug and Capt. Small are close friends.

### **Make 541-A Complete**

Most manufacturers have received from George Boeddener several copies of Form 541-A, which must be filed with Morgan Johnston at Room 2318, Social Security Building, Washington 5, D. C., in order to qualify to obtain the items needed when the Direction to PR-28 finally is issued. If you need the form, write Johnston. The suggestion is that you list anything and everything you require. If the motors and steel and other supplies are not presently included in the list of things that will be rated, it is possible a strong showing of unlisted needs may quickly put them on the priorities schedule.

CPA would like to know whether you can use a substitute for steel and pig iron, what grade and kind of steel you think you need and why. You will find CPA will be very insistent in demanding that you make

clear why you cannot use other types of steel or products that are less critical. You will be expected to give exact information about the absolute minimum quantity of material you think you need to keep your plant going until the suppliers from whom you normally get your steel can provide what you require. You are expected to tell where you got your materials and how much you received from each supplier in 1939, 1940 and 1941. Also, CPA will expect you to give a record of all orders you have placed with mills and which the mills have accepted, and you will be asked to give the date of your order, the order number, the tonnage involved, and when the mills have promised delivery. Finally, you will be required to indicate the shipments you received during each of the two months preceding the month you file the application for help.

### **Steel Is Really Tough**

CPA people insist the special assistance furnace manufacturers receive will depend largely upon the need. "One person will be helped more in one way and another in some other way. At the moment the help with steel is difficult because CPA revoked steel controls when the strike began. The revocation has not been revoked or cancelled, and the revocation will continue indefinitely until the pressure becomes more acute. This is the reason why it is important the furnace manufacturer file an application and give a true picture of his needs as soon as possible. CPA knows that it is natural the mills should give more help to users of large tonnage and to old and long established customers.

CPA also is familiar with the confusion that now exists in the mills and is reluctant to increase the muddle. One school of thought holds the opinion that it must be worse before it can be better; another thinks that before the steel supply situation becomes too critical, CPA should re-initiate the Controlled Materials Plan, with modifications. The officials in this group hold that the distribution of the basic materials at the source, as it were, will greatly simplify the whole process of making supplies available and will quickly equalize the flow of proportional quantities in a manner that will enable all plants to operate on essential production and will speed distribution of the finished equipment to those who are building the housing.

### **PR-33 Controls Housing**

Under the present system of operation of PR-33, the builder gets an HH rating from the Federal Housing Agency and he passes the rating along to the subcontractor who supplies the furnaces. *But the effectiveness of the rating stops at the distributor's level. He cannot pass it along to the manufacturer.* The manufacturer must go to CPA and initiate a new proceeding under PR-28 and CPA must help him to get his materials and parts and labor under a new and separate action. Incidentally, to get help in obtaining labor, CPA must negotiate with USES to place the manufacturer on a preferred listing. In effect this process is animated more by goodwill and cooperation between the agencies than by any compulsion under the law.

### **Controls—One Way or Another**

Under the present arrangement it is foreseen that the needs of the manufacturer will require that his

*(Continued on page 146)*



# First Steps To Sales Control

By Arthur Roberts

**S**ALES control is as important as cost control. Lacking either of these essentials to maximum profits, the warm air heating dealer and sheet metal contractor will find himself behind the 8-ball, so now is the opportune time to install an efficient sales control system because manpower and materials shortages and restrictions on business should soon be a memory; businessmen will be going into high gear to get sales volume; and maximum volume is not obtainable without sales control. Whether maximum volume will be profitable volume is a matter for cost control to supervise and determine, but paradoxically, maximum profits are not possible without maximum volume, because the higher the sales, the lower the ratio of costs to sales. Thus, sales control and cost control must mesh like gears in a machine, although the systems are operated independently.

Direct selling will be widely used as soon as the postwar period gets under way and as soon as salesmen are more numerous. In fact, some concerns are already using outside salesmen to do the spade work in their territory. Without sales control, direct selling will not attain maximum results and will prove more costly than it otherwise would if the work was properly systematized.

## Prospect Cards Are Basic

The contractor-dealer can utilize effective sales control if he follows certain fundamentals. Prospect cards are essential to sales control, but if these recording devices only list the name, address and phone number at the top of the card, the system is as obsolete as the surrey with the fringe on top. Such systems are better than none, but they lack many qualifications essential to maximum sales control.

An efficient sales control system should tell a complete story and function with mechanical precision. The "garden variety" type of prospect card, ordinary 4 x 6-inch blank, is a long way from a well-devised sales control system.

## Sales Control Cuts Costs

Sales control is an aid to cost control, in that sales control keeps costs at minimum. Selling costs will be higher in the postwar period than they were in prewar days. For one thing, outside salesmen on a straight commission basis will be harder to get from now on. You cannot make maximum sales of automatic heating and air conditioning jobs unless you go out after the business yourself or send salesmen out after it—waiting for customers to walk into your showroom to buy warm air heating installations is poor business. During the war, outside salesmen, because of a dearth of salables, and because war work came first, have been in war plants getting a regular stipend weekly, so these erstwhile business developers will be inclined to demand more definite

renumeration in the postwar period than a pay-as-you-sell proposition. The employer will have to invest more in his salesmen than he was wont to risk in bygone straight-commission days, so he must provide some means of determining what the investment is costing him and how to make it pay the biggest dividends. Better sales control is the answer.

## Straight Commission Faults

Before the war, most businessmen experienced unsatisfactory results with outside salesmen because the straight commission basis did not supply the needed incentive. In prewar days, we have inspected the records of organizations that put on dozens of salesmen weekly, in the hope that the law of averages would find a few good men out of the many chosen. Analyses of such dealers' selling expense disclosed that it ran higher than when they selected their men carefully after interviews and tests; paid them weekly drawings against sales; and kept close tabs on their operations with an effective sales control system.

Some salesmen will do a good job under straight commission, but they are in the minority. We believe that in the postwar period organizations using outside salesmen must decide to pay a weekly compensation to get best results and that is why sales control is a "must" in this postwar period for those contractor-dealers who go after business aggressively. Faced with heavier selling expense than in prewar years and with an avalanche of sales in the offing, the members of this industry cannot afford to gamble on results by using 4 x 6-inch index cards, 10 cents a pack, listing a prospect's name and address thereon, filing it away and calling it a sales control system.

## Paying Canvassers

Some sellers of heating appliances have found it profitable to send out "bird dogs"—canvassers sent out to dig up live leads that are turned over to veteran sales closers. These canvassers are sometimes women, sometimes students, sometimes rookie salesmen sent out to get the feel of things, too "green" to be entrusted with closing sales. Remuneration varies. It may be a small straight salary with or without a bonus for sales closed from the leads they turn in or, so much per lead canvassed, or so much per lead sold.

The telephone has been effective in digging up live leads, a girl in the office with a "Voice with a Smile" usually doing the phone-canvassing. To induce her to do her best, a small percentage is given her on every sale closed, and this sum can be taken from the salesman making the sale, or may be paid by the employer. Direct-mail has also been used to advantage in a similar manner in order to save experienced salesmen a lot of time doing useless canvassing.



### Results Must Be Checked

With the trend toward paying regular weekly compensation to outside salesmen, salesmanagers must see that their men get results. In prewar days, when many outside salesmen worked on straight commission, salesmanagers worried a little about remuneration because if the men didn't sell, they didn't get paid. Without adequate records, a salesmanager lacks adequate knowledge to direct his salesmen effectively. Under today's conditions he must know how many calls per prospect or sale; how many sales per prospect given to salesmen; and other pertinent information to compare these results with straight canvass or phone canvass or direct-mail solicitation. Lacking adequate sales control, he cannot compare results, so cannot guide his outside salesmen intelligently. Without a guide selling expense will be high because his men will not earn their keep or get maximum results for their efforts.

### Sales Training Must Be Given

The training of salesmen is another phase of sales control. Ex-soldiers, ex-war workers and prewar salesmen will enter the selling field in the postwar period and most of them will be soft, even those who were formerly adept at getting a signature on the dotted line. Both newcomers and experienced salesmen are in the same boat today—they must all be trained. Untrained men are no better in the selling field than making heating installations.

In the past, too many businessmen have permitted untrained salesmen to represent them. A poor salesman can spoil a territory quickly. With the tremendous opportunities now existing for warm air heating and air conditioning sales, the contractor-dealer can afford to train his salesmen adequately. He can't afford to send out untrained men to throw business to competition. But whether his men are trained or untrained, the returns will be below par unless he utilizes an effective system of sales control. Too many businessmen assume that sending out untrained salesmen on straight commission costs them nothing. This is a pathetic fallacy. The untrained man can throw sales away.

### Home Fields Are Greenest

The closer you sell to home, the more profitable the business. A management cannot go too far from home and operate with maximum profit. All other things equal, the most profitable sales are right next door. There too, trained salesmen get profitable prices. They do not come running back to the office continually asking for a better price to meet competition or a bargain-hunter's demands, a common practice of untrained men working far from home.

When outside salesmen know they are being checked closely, they do a better job in the field, providing the job is worth while holding.

This field offers such splendid opportunities to salesmen that the job of selling its wares will be extremely lucrative. Thousands of homes and other structures in every territory are ready to convert to warm-air heating, automatic or hand-fired, and many other places will be looking for original installations of warm-air heating and air conditioning equipment. It won't be hard to get outside salesmen to sell your wares in the postwar period because the opportunities to earn big income are there. The big job you have cut out for you is to establish some form of sales control that will enable your men to make maximum sales and enable you to guide them most effectively toward that objective.

### Post-war Sales Changes

Business leaders have predicted that salesmanship will be the cornerstone of prosperity in the postwar period. It goes without saying that businessmen in all fields must do a topflight job to maintain full employment. This poses a big problem for all businessmen because they have experienced a seller's market during the war years. Almost anything could be sold. Sales resistance has been practically nil, hence, it has not been necessary to utilize selling ability to any marked degree. During the war, many business concerns dispensed with their salesmen entirely, or if they maintained a skeleton sales force, the men were used mostly to keep contacts alive or settle complaints. It has been said more than once that many businessmen have gone "soft" on salesmanship during the war. Business fell in their laps, oodles of orders, buyers often begged for goods, the big job was rationing the limited supply to maintain customer goodwill, yes, salesmanship was just an orphan. Warm air heating dealers and sheet metal contractors, particularly those who worked on war orders, are in this category. It was a far cry from the pre-war days when businessmen had to be on their mettle all the time to get sales, when selling was the elixir of trade.

Salesmanship is the atomic energy that can wipe out unemployment in post-war days, so tune up the business engine now and take out the knocks that have developed through mis-use or dis-use during the war. Don't figure on taking the gravy train to big profits in the post-war years even though the future looks bright. The post-war period is here. Your success will be commensurate with your "sellevision" and the effectiveness of your sales control.

The next article will describe easy-to-use forms to control your sales plan.

## Federal Construction Deferred

**D**EFERMENT of Federal construction which would compete with veterans' housing for men and materials has been agreed upon by the Inter-Departmental Committee on Construction, which is composed of Federal Departments and Agencies interested in construction.

At the same time, the Committee gave its support to increased construction of community's facilities—such as streets, sewers, water-works and other utilities—which will be necessary to permit the Veterans

Emergency Housing Program to move forward with full speed.

The Committee assured its "wholehearted cooperation" in the realization of the objectives of the housing program—2,700,000 homes for veterans by the end of 1947.

The Inter-Departmental Committee on Construction is composed of representatives of the Federal Works Agency, Department of Agriculture, Department of Commerce, Department of the Interior, National Housing Agency, and the War Department.

# Partnership or Corporation\*

## [Cost of Changing Business Forms—Part 5]

### **From Partnership to Corporation**

A PARTNERSHIP may transfer its property to a corporation solely in return for stock without realizing any taxable gain or loss, if (a) the partners after the exchange have at least 80 per cent of the outstanding voting stock and at least 80 per cent of the total number of shares of all other classes of stock of the corporation, and (b) the amount of stock and securities received by each partner is substantially in proportion to the interest he had in the property before the exchange for stock.

In most cases, these requirements are automatically met in incorporating a business, and changing from a partnership to a corporation will usually involve no tax.

The actual change from a partnership to a corporation can be accomplished in either of the following two ways without resulting in any gain or loss for tax purposes:

1. The partnership is first dissolved, and the partners then turn over their share in the partnership in exchange for the stock.

2. The partnership transfers its assets to a corporation formed for that purpose in exchange for the stock of that corporation, and then distributes the stock to the partners.

In a nontaxable transfer the basis of the property to the corporation will be the same as the basis of the property before its transfer to the corporation. In certain of the following cases it may be advisable to realize a taxable gain or loss:

1. The property has decreased in value and the partner wishes to deduct the loss on his personal return.

2. The property has increased in value and the partners are willing to pay a tax on the amount of capital gains in order to increase the basis of the property to the corporation.

If the partners wish to realize a taxable gain or loss they can fail to qualify for a nontaxable transaction by (a) introducing new stockholders, so that after the exchange the old partners have less than 80 per cent of the stock, or (b) by taking stock in an amount substantially out of proportion to their previous interest in the partnership. However, note that a loss will not be recognized to a partner who owns more than 50 per cent of the stock of the corporation.

Before deciding on a taxable transfer, don't overlook this possibility: The Treasury may find that the newly organized corporation received a considerable

amount of good will which was not shown on any balance sheet of the partnership. As a result, the capital gains tax payable by the stockholders can be considerably increased with no increase in the basis of any corporate assets which can be recovered through depreciation or sale.

### **Dissolving a Corporation**

Unlike the transfer of assets from a partnership to a corporation, the reverse transfer results in the recognition of gain or loss regardless of how the transaction is handled. Upon the complete liquidation of a corporation, the fair market value of the property distributed is considered full payment to the stockholder for the stock relinquished to the corporation. The result may give rise to a taxable gain, either short-term (if the stock was held for not more than 6 months) or long-term (if held for more than 6 months). The amount of the gain is the difference between the fair market value of the property received and the basis of the stock in the hands of the stockholder. In most cases this basis will be the amount of money the stockholder paid into the corporation for the stock, or as paid-in capital. As a long-term capital gain, the amount reportable by an individual is 50 per cent of the total gain. In addition, this 50 per cent of the gain cannot be taxed at a rate higher than 50 per cent; all of which adds up to a maximum tax of 25 per cent on the long-term capital gain.

All of the assets of the corporation must be valued at the fair market value as of the date of distribution. The values will in most cases differ from the figures shown on the balance sheet of the corporation. Where the market value of the asset is greater than the book value, the gain to be reported is correspondingly increased.

This can be turned into a substantial long range tax benefit through a stepping up of the basis of the assets of the new, unincorporated business. The increase in value of the corporate assets is taxable to the stockholders usually as a long-term capital gain, and therefore subject to a maximum effective tax of 25 per cent. On the other hand, the increased basis may be used by the new business to reduce ordinary income which is probably subject to a substantially higher tax rate.

In calculating the fair market value of corporate property to be distributed in liquidating the corporation, the value of any good will comes up again. Good will may not be shown on any books or records, but the Treasury will almost always try to place a value on it. Where the corporate income is derived largely from personal services of the stockholder-employee, there will probably be little or no good will.

\*Reprinted from a report of the same title prepared by Research Institute of America.



But a considerable amount of good will may exist where (a) the corporate income is not derived chiefly from personal services, (b) the business has had a long and successful history and (c) its name has a definite value. The presence of substantial good will can easily make the tax cost of dissolving the corporation prohibitive.

### Recommendation

If you decide to change your business form, make a clean break with the old method of doing business. Complete all the necessary legal formalities. Loose ends can only lead to litigation, and may endanger the recognition of the new business form. Thus, where a corporation sold all of its assets to a partnership composed of its stockholders, and the books, records, and other business forms recorded the change to a partnership, the partnership was still questioned because the taxpayers had neglected to draw up any formal partnership agreement, the instrument of conveyance was not recorded, and no certificate of assumed name was filed. The case had to go to the Circuit Court before the taxpayer was able to get a definite ruling that a bona fide change was made.

### Valuing Good Will

Since good will can be an important factor in determining the tax which will be payable when a corporation is dissolved, the method used in arriving at a dollar value for good will is important. This value is usually best determined by capitalizing the earnings attributable to it. This is accomplished by (a) determining the average annual net earnings of the business, (b) ascertaining the value of the tangible assets, (c) deducting from the average net earnings the earnings attributable to the tangible property and (d) capitalizing the balance. There is no rigid rule as to the number of years to select in determining the average annual earnings, but the period chosen must be representative of the earning ability of the enterprise, and must fairly reflect the probably future earnings. Periods ranging from three to fourteen years have been used and approved.

All the circumstances of the case must be taken into account in fixing both the rate of return upon tangible assets and a reasonable rate for capitalizing the remaining earnings. For instance, in one business a fair rate of return on the tangible assets may be 8 per cent, while in another it may far exceed that percentage. The balance of the earnings over the earnings attributed to the tangible assets determined by this method is used in valuing good will.

Differences frequently arise as to the percentage at which the excess average yearly net earnings should be capitalized in order to determine good will valuation. The following formula has been approved for determining the value of the intangibles, including good will, of a newspaper business: (1) Average the earnings of the preceding five years. (2) Deduct 8 per cent of the average tangibles for the same period. (3) Capitalize the remainder at 15 per cent.

### Carry-Overs and Carry-Backs

The carry-over and carry-back provisions also deserve careful study before deciding to change from one to another form of doing business. This consideration may decidedly tip the scales against any change. Losses of both corporations and partnership can be carried back or carried forward for two years. But where a corporation dissolves and then operates as a

partnership, any losses incurred as a partnership *can not* be used to obtain a refund of taxes paid by the former corporation. Furthermore, the right of a corporation to carry back any unused excess profits credit will likewise be lost. The converse is equally true. A corporation formed out of a dissolved partnership cannot apply the corporate losses against the income of the partners for prior years. Of course, the unused losses can still be carried forward. But this involves a long range speculation with too many unknowns. The one definite fact is that the losses carried forward will not be able to offset high-rate war taxes.

True, if the business continues to prosper, the change in business form will have no effect on carry-backs (except for a possible unused excess profits credit which may develop because earnings are less than credit), since there would be no carry-backs regardless of whether the business form is changed.

### Illustration:

The A Corporation had the following figures for 1943 and 1944:

	1943	1944
Income .....	\$90,000	\$95,000
Excess profits credit (\$45,000) and exemption (\$5,000) .....	50,000	50,000
Excess profits net income .....	<u>\$40,000</u>	<u>\$45,000</u>
Excess profits tax .....	\$36,000	\$40,500
Normal tax and surtax .....	20,000	20,000
Total tax .....	<u>\$56,000</u>	<u>\$60,500</u>

On January 1, 1945, because of the high excess profits tax, the corporation is dissolved and a partnership is formed. The partnership has a poor year and makes only \$10,000 in 1945. If the corporation had continued to operate, it would have been entitled to a claim for refund against the taxes paid in 1943, calculated as follows:

Unused excess profits credit for 1945 (\$45,000 — \$10,000) .....	<u>\$35,000</u>
Reduction of 1943 excess profits tax (90% of \$35,000) .....	\$31,500
Increase in 1943 income tax (40% of \$35,000) .....	14,000
Net refund .....	<u>\$17,500</u>

By operating as a partnership, the taxpayers lost more in tax refunds (\$17,500) than they made in profits during the year (\$10,000).

### Illustration:

Suppose the same partnership lost \$10,000 in each of the two years 1945 and 1946. The refunds received if it had continued as a corporation would have been as follows:

Unused excess profits credit for 1945 .....	<u>\$45,000</u>
Loss for year .....	<u>\$10,000</u>
Reduction of 1943 excess profits tax (entire tax) .....	\$36,000
Increase in 1943 income tax (40% of \$80,000 (\$90,000 — \$10,000) less \$20,000) .....	12,000
Net refund for 1943 .....	<u>\$24,000</u>
Net refund for 1944 computed in same manner .....	26,500
Total refund .....	<u>\$50,500</u>



In this case it paid to lose money. If the corporation had continued, the loss of \$20,000 in two years would have been offset by refunds of \$50,500.

### **Life Insurance Proceeds**

There is another penalty which may have to be paid for dissolving a corporation. The proceeds of any life insurance policies transferred from the corporation may lose their tax-exempt status. Life insurance proceeds are generally tax-exempt. However, when the policies are transferred for a valuable consideration, such as in return for stock, the transferee becomes taxable on the excess of the proceeds over the basis of the policy. Thus, if policies covering nonstockholder-employees are distributed on the liquidation of the corporation, the proceeds subsequently received will not be fully tax-exempt. The amount taxable will be the proceeds minus the cash surrender value at date of dissolution and the premiums subsequently paid.

Where the policies cover an employee-stockholder, a different rule apparently applies. The Treasury has held that where a policy is transferred to the *insured*, the proceeds still retain their tax-exempt characteristics. On the basis of this decision, where the policy is on the sole stockholder the distribution of the policy to the stockholder would seemingly not make the future proceeds taxable. If the policy were on the life of only one of a number of stockholders, the future proceeds would presumably be taxable only as to the share belonging to the *uninsured* partners.

A transfer of a policy from an unincorporated business to a corporation in a tax-free transfer does not result in changing the tax-exempt nature of the insurance proceeds. Therefore, the incorporation of a business does not face the problem involved in a corporate dissolution.

The tax-exempt character of the life insurance proceeds can be maintained if the old policy is cancelled and a new policy taken out by the partnership. While this is a solution to the problem, it is not always feasible because the insured may not be able to pass the physical examination, the policy may contain special provisions which can no longer be obtained, a substantial loss is incurred on cancellation, etc.

### **Perils of a Short Last Year**

Corporate dissolutions which take place other than on the last day of the taxable year result in a final return for a period of less than twelve months. The income for such short year must be placed on an annual basis for excess profits tax, although not for income tax, purposes. This can often result in a larger tax than would be required if the corporation had dissolved at the end of its year.

Income is placed on an annual basis by calculating what the year's income would be if the same rate of daily earnings for the short year had continued for the full twelve months. A tentative excess profits tax is then computed on this increased income. The actual tax is arrived at by multiplying the tentative tax by the number of days in the short year and dividing by the number of days in the full twelve months.

An alternative method of annualizing income may be used. Under this optional method, the tentative excess profits tax is computed on the *actual* income for the twelve months ended with the *close* of the short year. The actual tax is then figured by multiplying the tentative tax by the excess profits net income for the short year, and dividing by the excess profits net income for the twelve-month period.

The dissolution of a partnership raises no question of annualizing income. It may, however, involve the pyramiding of more than one year's income in the partner's returns. This is due to the requirement that a partner report his share of the partnership income for the partnership year ending with or within the taxable year.

In order to avoid a short year return where a corporation is to be dissolved in the middle of the year, sufficient business activity should be carried on by the corporation for the remainder of the year to avoid the claim that the corporate year ended with the transfer of the assets. The Tax Court has held that where *all* of the assets were transferred before the end of the year, but the corporate charter was not surrendered until after the close of the year, the taxable year ended with the transfer of the assets. While the retention of a nominal amount of assets *might* be sufficient to extend the taxable year, it is safest to retain more than a nominal amount.

### **Information Returns**

Corporations which adopt a resolution or plan for dissolution or the liquidation of the whole or any part of their capital stock, must file an information return within thirty days after the adoption of such resolution or plan. The return must be made on Form 966 and must be filed with the Commissioner of Internal Revenue, Washington, D. C., attention of the Income Tax Unit, Record Division. In the case of any amendment or supplement to a resolution or plan for the dissolution of the corporation, or the liquidation of the whole or any part of its capital stock, a like return must be filed by the corporation. A return must be filed regardless of whether any gain or loss is recognized. A certified copy of the resolution or plan together with any amendments or supplements must be attached to the return.

Corporations making a distribution in liquidation of all or part of their capital stock of \$500 or more during the calendar year to any shareholder must file a return on Forms 1096 and 1099L. A separate Form 1099L must be filed for each shareholder receiving the distribution. If the distribution consists of cash and property, the amount of cash distributed must be stated. In addition, each class of property must be listed and described and its fair market value at the time of distribution must be noted. These forms, accompanied by a transmittal letter on Form 1096, showing the number of Forms 1099L which are being filed, must be sent to the Commissioner of Internal Revenue, Processing Division.

### **Adopting a Taxable Year**

When you change your form of doing business, you are free to select a new taxable year. The taxable year on which the old business reported need not be continued. Thus, if the corporation were on a calendar year basis, its partnership successor could elect to report on a fiscal year ended June 30. The new year is selected by filing a return for the period up to the end of the year desired. For example, if a corporation started business on September 1, 1944, and wanted to adopt a fiscal year ended February 28, a return would have to be filed for the period, September 1, 1944, to February 28, 1945.

There's no special tax gain or loss in reporting on a fiscal rather than a calendar year basis. Before 1942, a fiscal year taxpayer obtained an advantage during

(Continued on page 142)

# NEWS SUMMARY OF THE MONTH

## The Wyatt Program

**T**HE program of 2,700,000 low and moderate-cost houses to meet pressing needs of veterans by the end of 1947 proposed by Wilson W. Wyatt, new Administrator of the National Housing Agency and Housing Expediter, on February 7th contains 15 recommendations for action along a number of fronts.

The 15 recommendations are:

1. Of the 2,700,000 houses, 1,200,000 will be started in 1946 and 1,500,000 in 1947. The 1946 quota will include 700,000 conventional houses; 250,000 permanent prefabricated houses, and houses assembled on-site from prefabricated parts and materials; and 250,000 temporary units. For 1947 there will be started 900,000 conventional houses; 600,000 permanent prefabricated houses and houses assembled on-site from prefabricated parts and materials.

2. Preference for veterans and their families in the rental or purchase of these homes with appropriate provisions for nonveteran hardship cases.

3. Greatly expanded production of conventional and new type materials are possible by:

- Premium payments for increased production,
- Guaranteed markets for materials manufacturers,
- Priorities and allocations of equipment and materials,
- Wage-price adjustments or price increases where they are necessary and not inflationary,
- Use of war plants and new facilities to increase present production capacity,
- Rapid tax amortization for plants which are newly built or converted to produce essential building materials,
- Absorption by Government of undue risks in developmental work on new type materials.

4. Recruitment and training of 1,500,000 additional workers on-site and off-site by the middle of 1947. This means more than tripling the present labor force engaged in residential construction.

5. Postponement of all deferrable and nonessential construction for the balance of 1946 to release needed materials and labor for veterans' homes and for essential and nondeferrable projects.

6. Rapid expansion of factory fabrication of materials and parts, as well as complete low-cost homes by making materials available and guaranteeing the market for the product.

7. Priorities and allocations to home builders for equipment and materials.

8. Federal cooperation and assistance where necessary in the development of home sites.

9. Channelling the largest part of materials into homes and rental housing, both farm and urban, selling for not more than \$6,000 or renting for not more than \$50 per month.

10. Curbing of inflation through more effective price control on building materials, ceilings on new and existing homes, and on building lots, and through the continuation of rent controls.

11. The early adoption of S. 1592, the Wagner-Ellender-Taft bill.

12. Insured mortgages on low-cost homes up to 90 percent of value and based on necessary current costs.

13. New temporary legislation to support the program, including \$250,000,000 for temporary re-use war housing.

14. Community participation paralleling Federal action through emergency housing committees in cities and towns throughout the country.

15. The Reconstruction Finance Corporation to play a major role in financing the program. In addition, authorization from Congress will be required immediately to provide \$600,000,000 for premium payments.

## Building Materials Report

**I**MPROVEMENT in first quarter production of major construction materials is expected, following a general downward trend at the close of 1945, says Construction Division, Department of Commerce.

Construction costs and prices of construction materials continue to rise, with prices of materials reaching their highest level in 25 years, the report states.

Data for some key materials follows:

**STEEL:** January production was curtailed by the strike and showed only about 60 percent of capacity as compared with 75 percent in December and 79 percent in November. Sheet and strip are the tightest of all steel shapes and are expected to continue in short supply through the first half of 1946.

**LUMBER:** December production declined to the lowest monthly level in ten years. Excess of demand over supply continues to keep both mill and distributors stocks at an all-time low.

**Millwork:** Unfilled orders far exceed production which is hampered by shortages of manpower and materials.

**Brick (common and face):** Demand represents about 3½ months production at the present rate. Total 1945 shipments of 2.4 billion brick represented an 18 percent increase over 1944 shipments. Stocks at the close of 1945 were at an all-time low and were only 15 percent of normal.

**PORTLAND CEMENT:** December 1945 production was about 32 percent greater than that for December 1944, and output in 1946 is expected to amount to from 140 to 145 million barrels.

**ASPHALT ROOFING, SIDING, FELTS:** Backlog of unfilled orders continues large, amounting to from 9 to 12 weeks production. Heaviest demand is for saturated felts. December shipments of prepared roofing were the lowest in the past four years.

**CAST IRON SOIL PIPE:** January production is expected to rise sharply to approximately 26,500 tons from an estimated December output of 21,971 tons. Demand represents 12 months production at the current rate. Output is affected by shortage of pig iron which is becoming more acute.

**CONCRETE BUILDING BLOCKS:** Unfilled orders amount to more than double the current production rate. Inventories at the end of 1945 were only 50 percent of normal. If sufficient manpower is available, 1946 requirements can be met.

**Bath tubs:** Production of over 125,000 cast iron tubs in the first quarter 1946 is considered feasible. Pro-



duction of steel tubs in the first quarter is dependent on the availability of sheet steel; facilities are adequate to produce more than 10,000 steel tubs.

**Water heaters:** Shortages of sheet steel and castings are retarding production.

**Cast iron radiation:** Production is improving but is not expected to show sharp gains in the first half of 1946. January production is estimated to be 2 million square feet.

## Wage "Patterns"

THE national wage stabilization board has ruled that wage increase "patterns," established under the administration's new wage-price policy, represent neither a "floor" nor a "ceiling" on pay raises.

The board issued a "guiding statement of policy," over protests from labor members, which said no patterns technically could be set after Feb. 14.

[A "wage pattern," under terms of the wage-price policy, is general application within an industry or a locality of wage increases made between VJ-day and Feb. 14, 1946, either voluntarily or as a result of arbitration awards, fact finding recommendations, or other governmental proposals.]

The board established these seven guides for use of the wage pattern standard by employers and unions:

1. That the amount of wage increase placed into effect in particular industries or labor market areas from Aug. 17, 1945, to Feb. 14, 1946, indicates the wage adjustment which the board will approve as a pattern.

2. That, in directing recognition of patterns, "the executive order refers not to a single pattern, but to those various patterns which have been developed during this six month reconversion period in various industries and localities," meaning that there is no over-all pattern for all workers.

3. That recognition of industry patterns normally will follow wage increases made in "dominant" companies or groups of companies, while area patterns normally will follow adjustments by "a substantial or significant number of companies in a local labor market area."

4. That any patterns which the board considers well enough defined for general application will be announced "as quickly and as currently as possible."

5. That any wage increase under a pattern may be used before OPA automatically in seeking price relief.

6. That patterns will be neither wage "floors" nor wage "ceilings" and that the board will, in particular cases, consider any special circumstances justifying or requiring a departure from pattern.

7. That, in ruling upon a particular case, the board will consider primarily, but not exclusively, the previous wage practices of the applicants.

### 33 Pct. Over 1941 Permitted

A gross inequities standard was established for industries in which no wage pattern exists. This standard requires the board to compare related industries both in terms of wage rate levels and in terms of post-VJ-day wage increases.

In connection with application of "cost of living" standards for wage increases, the board emphasized that the wage-price policy permits approval of increases up to 33 per cent above Jan. 1, 1941. The increase involves wage "rates" rather than "earnings" as previously provided in the former wage-price policy.

## Natural Gas Supplies

STATES G. G. Oberfell, Phillips Petroleum Co., in the magazine "Gas Age":

"An increasing domestic gas load can be expected as our population turns away from the many inconveniences and deficiencies of outmoded heating appliances . . .

"It is also expected that the use of the coal and fuel oil for general house heating in well designed and efficient equipment, operating with a new high standard of cleanliness, will show a decided increase and ultimately may arrest the trend toward the use of gas for this purpose. The extension of natural gas use does not appear probable in those applications where the cost per heat unit is the prime factor . . .

"There are more chances of research developing the available energy of present fuels in a radically different way, resulting in a surplus of crude oil, than there are that our petroleum resources will be exhausted in less than a century. The best answer to the problems of magnitude and longevity of petroleum reserves is to be found in higher prices for crude oil and gasoline which would not only result in the discovery of more crude oil reserves and promote the efficiency with which they are utilized, but would also enable coal to regain its lost markets.

"If natural gas were used at the estimated 1944 rate of consumption our proved gas reserves would last a little over 35 years. Yet we know that a large amount of the gas used was sold at very low prices only because there was no higher price markets for natural gas available. Therefore, as higher price markets for natural gas are developed or greater value is placed on this material, the low price markets such as carbon black, natural gas for power, and low price industrial uses will disappear. Such being the case our natural gas resources will not be exhausted prior to those of crude oil.

TABLE XI  
Proved Reserves of Natural Gas, Crude Oil and Coal

	Weight Thousands of Short Tons	Heat Value of Trillions of B.t.u.'s	Volume Trillions cu. ft.	Millions of Bbls.
Natural Gas (a).....	3,384,000	150,000	140	
Crude Petroleum (b)...	3,135,000	123,000		20,452
Coal (suitable for Fischer-Tropsch) ....	1,400,000,000	36,400,000		
Coal (all grades).....	3,178,000,000	66,534,000		

(a)—Assume 1075 B.t.u. per cu. ft. and 48.35 lb. per M cu. ft.  
(b)—Assume 6,000,000 B.t.u. per barrel and 7.3 lb. per gal.

## 75,000 Units for Reuse

A TOTAL of 75,321 surplus war housing units had been assigned as of February 1 by the FPHA to municipalities and educational institutions to house veterans and servicemen's families.

On the same date FPHA Regional Offices reported that applications for a total of 311,000 units of surplus war housing had been filed to obtain re-used or converted surplus war housing under the \$191,900,000 appropriation which became law on December 31, 1945. The appropriation is estimated to pay the costs of moving or converting 100,000 units.

Assignments of surplus war housing made under this appropriation are subject to the acceptance by the applicant of the terms, which include provision of a satisfactory site. The applicant must also agree to manage and operate the projects, and to remove all temporary structures, as required by the Lanham Act, when the housing emergency need is over.



AMERICAN ARTISAN

# RESIDENTIAL AIR CONDITIONING



DEVOTED TO HOME AND SMALL COMMERCIAL AIR CONDITIONING

# W

IT'S WHAT'S UNDER THE  
CASING THAT COUNTS!

# Waterbury

## GASTITE FURNACES

We keep on saying: "It's What's Under the Casing That Counts",

And you say: "Well, What Is Under Your Casing?"

Some of the things that you can see under the Waterbury casing:

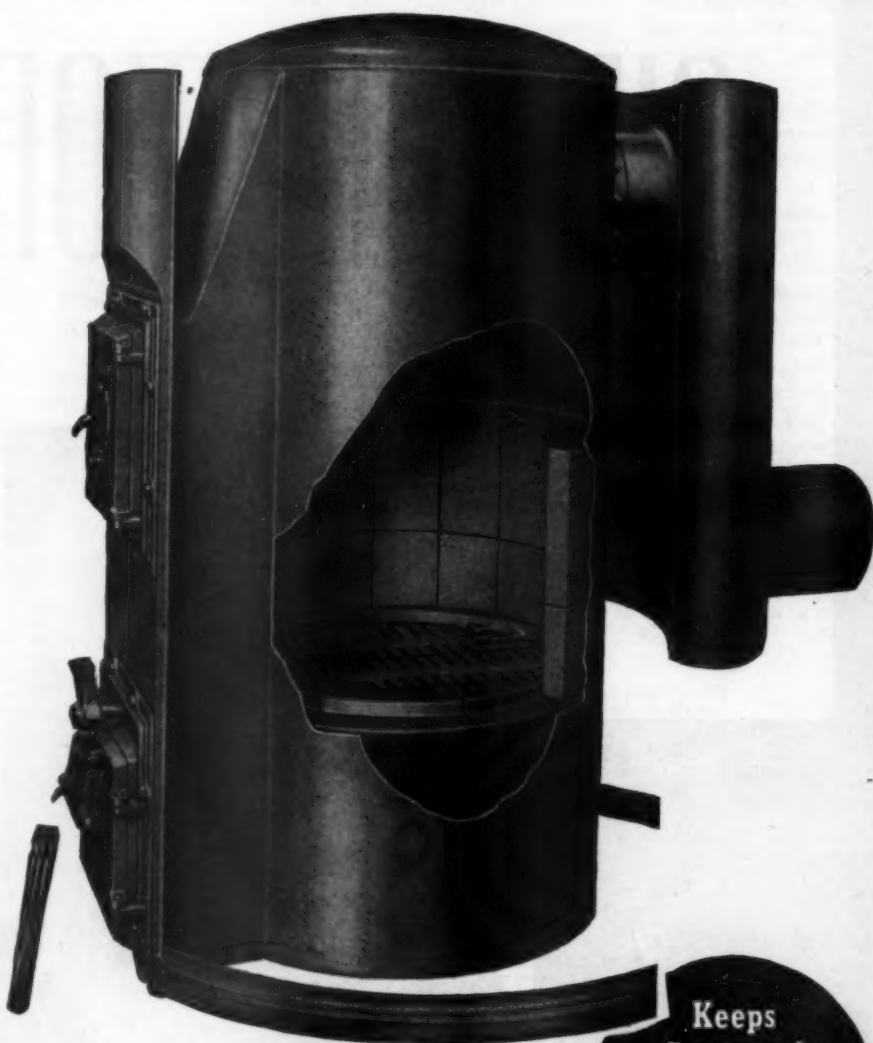
1. There is that steel body, welded into one integral unit that positively and permanently keeps every speck of dust and every whiff of gas out of the air-stream.
2. There is that long fire-travel that means the almost complete combustion of all fuel elements.
3. There are those large heating surfaces that mean so much in heating efficiency and economy.

Then there are the equally important things that you can't see but which go a long way toward making an efficient heat-making machine that builds good will and growing volume for Waterbury dealers.

1. There are 35 years of growing success in building furnaces, during which time we pioneered many of the outstanding improvements in warm air heating.
2. There are the engineering skill and experience that go into the mechanical designing and the coordination of all these factors to make a furnace that delivers for years and years the kind of healthful heating service that the home-owner has a right to expect.

This also is important: At first glimpse you and your customer will recognize that a master has designed an exterior in keeping with the sterling qualities we put under all Waterbury casings.

Truly a furnace that is best for you and best for your customer.



### THE GASTITE FURNACE

Moderate in Price

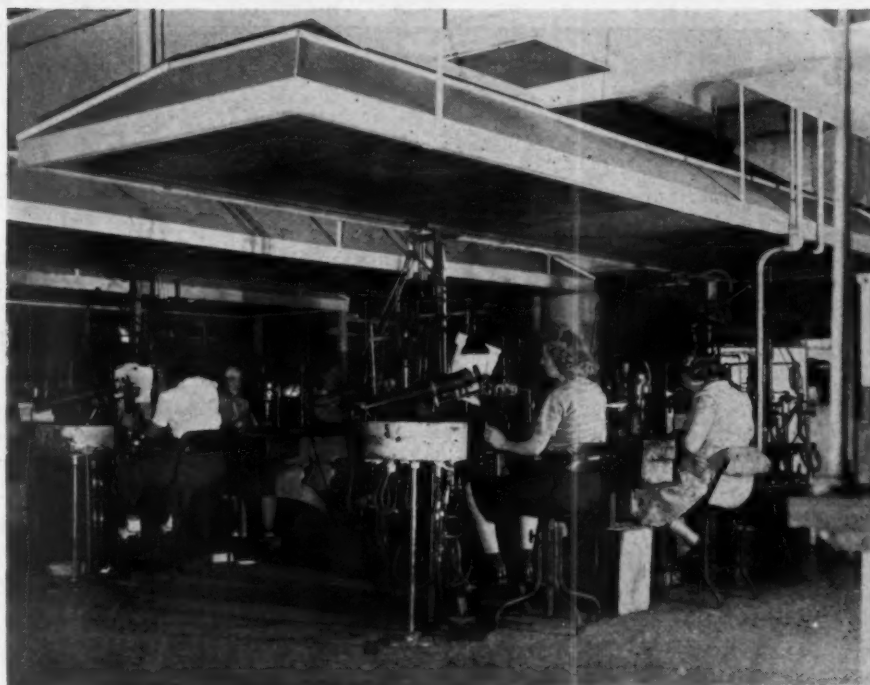
High in Quality

Keeps  
Gases and  
Dust Out of the  
Heat  
Stream

## THE WATERMAN-WATERBURY COMPANY

1122 Jackson St. N. E., Minneapolis, Minn.

Each canopy above the tubulator machines and annealing furnaces has to withdraw approximately 2,100 cubic feet of air per minute without disturbing the small flames which form and anneal the glass. The construction devised to do this is shown in the details on next page.



## Air Conditioning and Ventilating Systems to Safeguard Health and Comfort of Workers

By E. E. Herbacek

Secretary and Chief Engineer, Spencer Air Conditioning Co.

**D**ESIGN of the air distribution system for a recent air conditioning installation made by the Spencer Air Conditioning Co. in one of the Minneapolis-Honeywell Regulator Co.'s plants presented a difficult problem due to the unusual requirements of critical manufacturing process control. The installation was made in the mercury switch department, occupying an entire floor of the main plant building. In this department, glass tubing is transformed into the various sealed mercury switches and contactors used in many types of temperature and electrical regulators. In this process, a multitude of finely adjusted gas flames are used by expert glass operators. It is essential that these flames not be disturbed by air movement, or the process cannot be carried on.

In addition to these individual flames, there are also three batteries of large, automatic gas flame operated, tubulator machines and annealing stoves. After being formed and calipered, the glass product is placed in electric annealing ovens which are located at each operator's station. Vacuum pump equipment, together with a battery of 1,500 watt electric heaters, is used to produce the vacuum within the tube and introduce the mercury, after which the tube is sealed with small horseshoe gas flame sealers.

Previous to the installation of air conditioning, temperatures in this space rose to as high as 120 F. during summer months due to gas and electric heat dissipated within the department by the numerous process appliances. These abnormal conditions made

it impossible for the operators to work fully clothed and many rest periods were required to allow periodic recuperation, which seriously affected production output of the department.

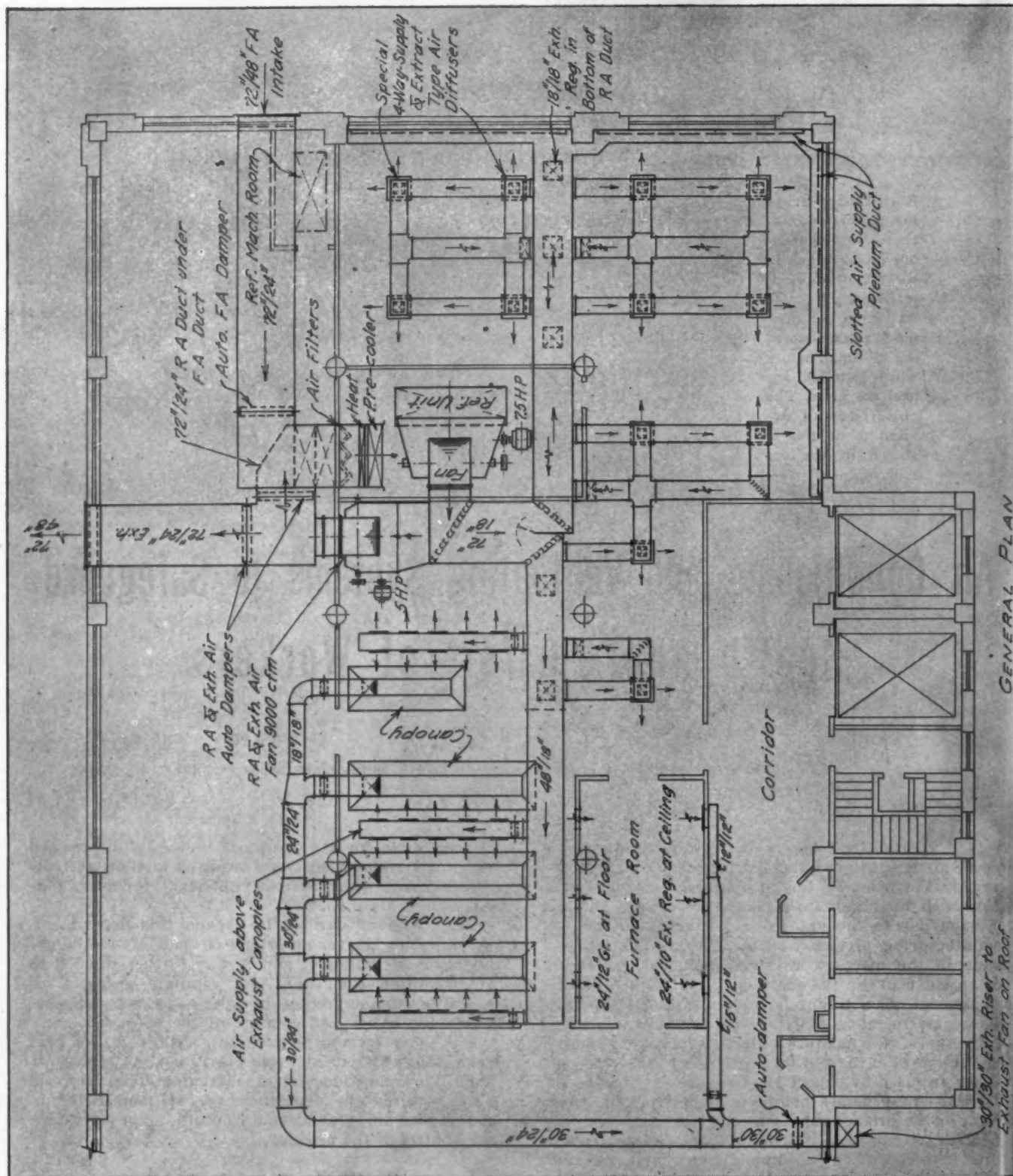
The company decided to expand this department, necessitating larger quarters on one of the upper floors of the building, and it was further decided to air condition completely and ventilate properly all operations of the process, in order to protect and safeguard the health and comfort of the operators.

The glass forming department, with all of its heat generating equipment, was partitioned to isolate it from the remainder of the manufacturing process. This required the department to be completely air conditioned for year around comfort of the operators and control of the process.

### Ventilating Problems Ticklish

The estimated total heat load for this space, which was to be removed by the exhaust ventilation and air conditioning system, consisted of 411,200 Btu per hour total in gas flames, 290,000 Btu per hour total for electric heaters and ovens, and 23,000 Btu per hour total from human body heat dissipation and lights. The installation of a canopy type exhaust system in addition to uniformly distributed combination supply, return, and exhaust ventilating systems throughout the entire space, results in the removal at the source of the heat contained in the products of





combustion, leaving only radiant heat liberated to the room.

The estimated sensible and latent loads indicated a sensible ratio of 98 per cent of the total internal heat load, requiring 16,000 cfm. to maintain 85 F. inside temperature and 50 per cent relative humidity when the outdoor conditions are 95 F. dry bulb and 75 F. wet bulb.

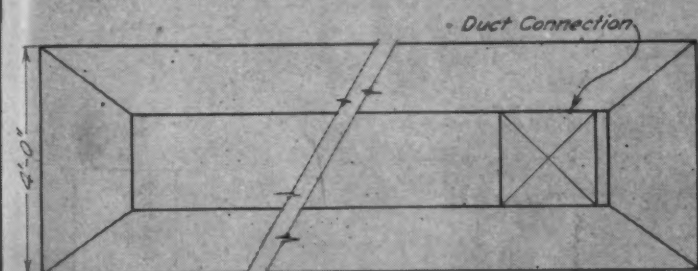
The gross content of the space is 32,800 cu. ft., resulting in a 2 min. air change, and, based on the net cubic content, this is probably closer to a 1½ min. actual air change.

The air volume requirements, with the resulting rapid air change, necessitated careful study and consideration in the matter of introduction and distribution of the air over the area served.

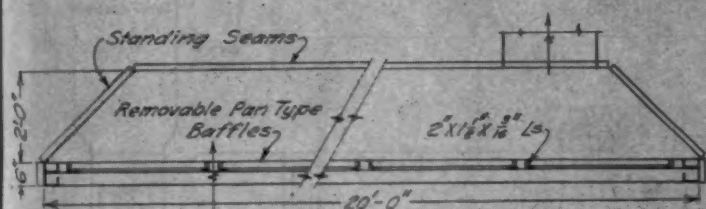
After numerous tests and study of various methods of distribution and diffusion, it was found that elimination of drafts and distortion of the gas flames required uniform distribution of the air at low velocities and over small areas. Accurate adjustment and close control of air volumes and velocities were also found to be necessary.

A special air diffuser was designed to include supply

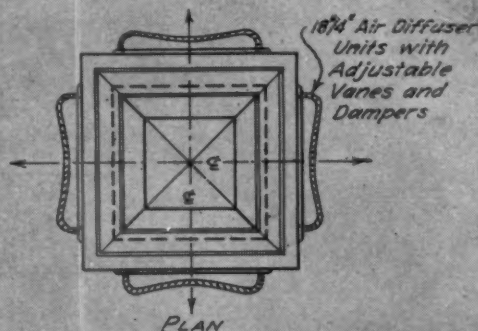
GENERAL PLAN



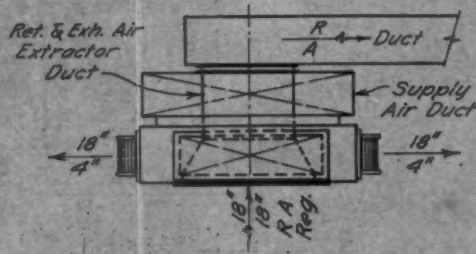
CANOPY PLAN



SECTIONAL ELEVATION  
EXHAUST CANOPIES



PLAN



ELEVATION

SPECIAL AIR DIFFUSER

Facing is the plan of the space air conditioned and ventilated. Note the 3 1/2 hoods above the automatic tubulators and the air distribution system using special "no-draft" diffusers. The detail above shows construction of a diffuser and of the hood. Below is a closeup of tubulator machines and annealing furnace under a canopy.

and exhaust air in each individual unit, with each unit supplying air uniformly through a 360 deg. area and having adjustment and control of diffusion both in a horizontal and vertical direction. This special air diffuser unit is shown in the accompanying drawing. These units are located at 7 ft. 0 in. from the floor and on the quarter points of each 25 ft. bay, resulting in a 6 ft. 0 in. air throw from the centerline of each unit. Each of these twelve special air diffuser units is designed for a capacity of 500 cfm., or a total of 6,000 cubic feet of air per minute.

In addition to these internal area diffusers, periphery slotted plenum air chambers are installed directly above the large exposed glass subjected to solar heat, as shown in the drawing. These slots discharge downward, blanketing the entire glass surfaces, and are adjustable at intervals of 30 in. lengths by means of slide type dampers to change the slot orifice size, volume, and velocities. The air curtain system for the window surfaces has a capacity of 3,000 cfm.

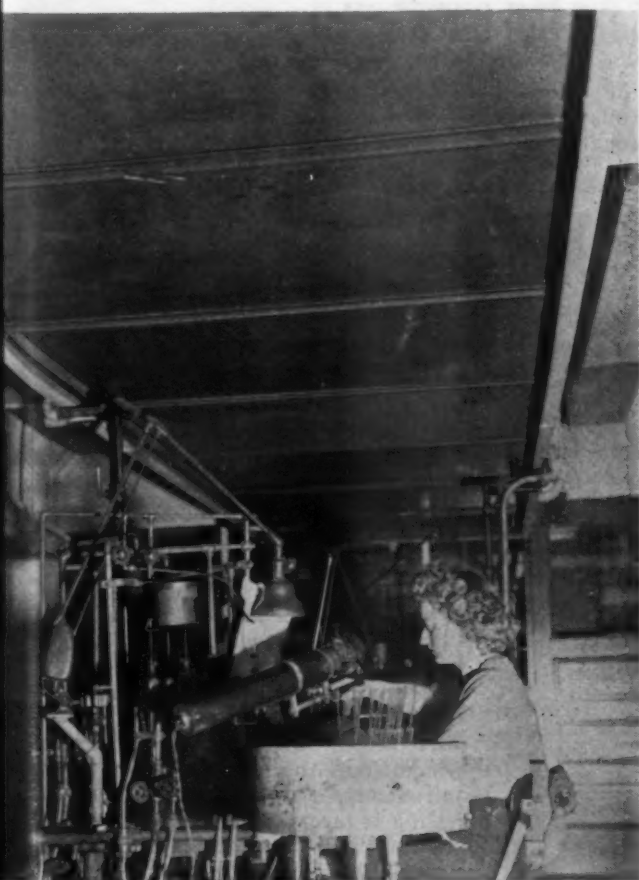
Exhaust canopies are installed over the automatic tubulator machines. These canopies are 20 ft. long by 4 ft. wide and are of the inner pan construction having 1 1/2 in. periphery, and intermediate slots to reduce the volume of exhaust air requirements and maintain an average of 300 fpm. slot velocities. These canopies are connected to a separate atmospheric exhaust system having a capacity of 7,500 cfm., which requires that at least this amount of new air be introduced to the space by the air conditioning system at all times. None of the air from the canopy section of the space is returned to the air conditioning system.

### A. C. System Details

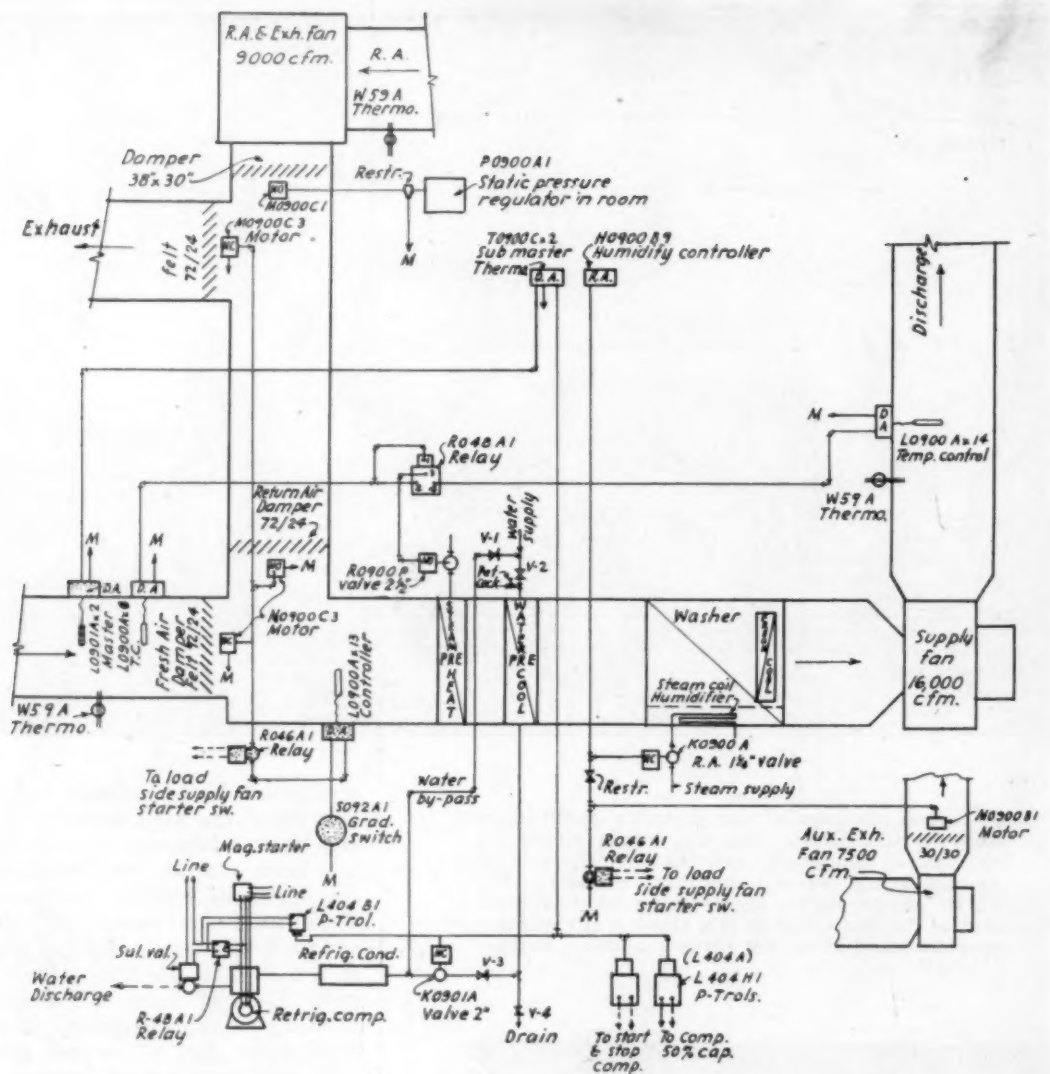
The air conditioning system is designed and arranged to introduce up to 100 per cent new air to the space when desired by the combination return and exhaust air fan system installed in connection with the supply system.

The estimated total refrigerating load for this space, with the introduction of new air to serve the hood exhaust system, is 86 tons.

The air conditioning equipment includes air clean-







Above—air piping and wiring diagram of pneumatic control system. Below—photo of the special diffusers. Note periphery slotted plenum chambers above the windows.



ing filters, preheat coils, 48 ton capacity precooling coils through which well water is circulated, and final cooling and dehumidifying accomplished by a refrigerated water sprayed coil unit connected to a 38 ton "Freon" refrigerating machine. Waste water from the precooling coils serves as condenser water for the refrigerating machine, thereby effecting an economical operating cost for the split system of cooling and dehumidifying.

Plenum type supply and return air mains run throughout the length of the space, with branch ducts to the supply and extract type diffusers. The supply main terminates at the slotted air plenum above glass window surfaces.

A combination return and exhaust air fan is installed and connected to the return air main. This fan has a capacity of 9,000 cfm. and is arranged with automatic static pressure control equipment to either return air to the air conditioning equipment or exhaust to atmosphere in proportion to new air introduced. Since the canopy exhaust system fixes the minimum new air requirements, a corresponding minimum setting is incorporated in the automatic fan control.

(Continued on page 144)





## Part 3—How Air is Comfort Cooled by Evaporation of Water

**I**N ORDER to avoid trouble through lack of knowledge, or erroneous conception, it is essential that the following principles of evaporative cooling be thoroughly understood and adhered to.

Heat exists in two easily conceived forms. For the sake of simplicity they are referred to here as: "Live Heat" and "Dormant Heat." Technically they are referred to as: Sensible Heat and Latent Heat.

"Live" heat is the form with which everyone is familiar; it is present in anything in which you can feel heat—hot air, hot water, burning fuels, friction, etc. The less well understood "Dormant Heat" can be best explained by a few examples. (1) An unlighted match contains dormant or potential heat, but the heat cannot be felt until the match is lit. Simply ignite the match and the heat becomes very much alive. "Dormant" heat was changed to "live heat." Extinguish the flame before the stem is consumed—live heat is gone, but some dormant heat remains. Unlighted fuels such as gas, coal, fuel oil and wood contain potential heat. This dormant heat changes to live heat when combustion begins. Extinguish the flame and only dormant heat remains.

From the foregoing examples, it becomes evident that one form of heat can be changed to another by various means.

One simple means of changing "Live Heat" to "Dormant Heat" is by drawing air laden with live heat through a water moist pad. This causes evaporation of water and changes, or converts, Live Heat into Dormant Heat, during the evaporative process. Although warm air and ordinary tap water is used in this process, if atmospheric conditions are favorable, cool air is the result. Sensible temperature of the air has been reduced. This is a simple, inexpensive, reasonable foolproof way of "Comfort Cooling" air.

While heat is "Dormant" the air is cool and comfortable. However, heat converted in this manner will not stay dormant very long. Just how long varies with climatic conditions. As a broad statement, it can be said that heat will stay dormant from  $\frac{1}{2}$  to 4 and even 5 minutes. Arid and semi-arid climates have drier air which will absorb more water, thus permitting heat to stay dormant for longer periods. Areas adjacent to large bodies of water have much more natural moisture in the air, which restricts evaporation, so heat stays dormant for very brief periods in such areas. If air is too wet, or saturated, no conversion at all is possible.

From the above, it becomes plain that air must be forced through "area to be cooled" and permitted to escape outdoors again, while heat is still dormant. If the air is changed too slowly, or is not outdoors again in proper time, heat will "reconvert" indoors, or will change back to "live heat."

Associate Member, A.S.H.V.E.; Member, American Society for Metals; Owner, American Metal Products Company, Fort Worth, Texas.

### How Evaporative Cooler Cools

Varying amounts of moisture are added to the air during its trip through the pad of an evaporative cooler. If the unit is of proper design and capacity the very little moisture added can be detected only by instruments. If the unit is too small, or of poor design, or improperly operated, large amounts of moisture will accumulate indoors with undesirable consequences. Poorly designed units, although of proper capacity, can produce exorbitant humidity.

Boiled down: Take outside air (exclusively); draw it through an evaporative pad; force it through area to be cooled; let it out doors again. Do this fast enough and the results are remarkable, especially in view of the very low costs involved. Violate the simple principles given here and trouble begins. This is nature's very own, age-old process for producing cool air in hot weather.

### Areas Suitable for Evaporative Coolers

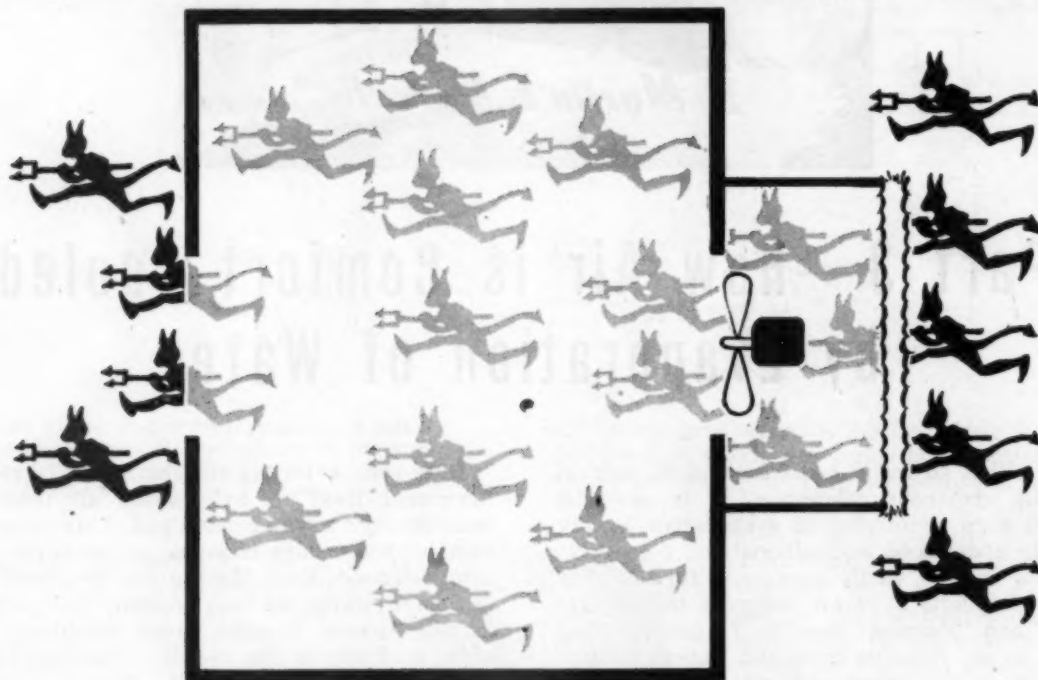
The areas suitable for evaporative cooling are a much discussed question and one on which many informed, and a great many more who are not so well

imposed by climate.

Almost all inland areas are suitable for evaporative cooling providing proper air changes are made. Experience has proved that if humid air is moved fast enough good cooling can be obtained, even when the air is near the saturation point. To explain: areas adjacent to large bodies of water almost always enjoy cooling breezes, and in spite of high humidity conditions, many residents of inland areas spend large sums of money each year traveling to such spots. Evaporative air coolers work on exactly the same principles, but provide cooling "at home" and under better control.

Another important question is: "Just how many degrees will an evaporative cooler drop the air temperature?" This is the question which is difficult to answer. Easiest "brush off" answer is: Temperature reduction varies constantly, depending on the moisture in the outside air. One salesman's standard reply is: "I don't know. I never checked it. I sell comfort and relief from the heat, not degrees of temperature reduction." That is a good answer as air temperature alone is no assurance of comfort.

But for those who must have an answer, here is



The solid "devils" represent heated units of air. The evaporative cooler removes the heat leaving cooler units (grey devils) which can pick up heat from the air in a room and thus cool the room.

## RIGHT

*Proper Size Cooler*

informed, fail to agree. As might be expected, better results are obtained in arid or dry territories. Unfortunately for manufacturers and their outlets, very few people live in such areas. Hence, it is necessary that we consider the results obtainable in all areas of the United States.

In general, evaporative cooling is not recommended for areas along seashores, or in other regions of high humidity, although many satisfied users can be found along the Gulf Coast. While some relief can be obtained in such areas by means of moving the air very rapidly, installations should only be made by individuals who are thoroughly experienced, and for users who thoroughly understand the limitations

something a little more definite. These estimates are for a day when humidity would be about normal for the area. These are room temperatures and should not be confused with temperature "drop," taken directly in front of fan, as this will be greater:

In most of the twelve western states: 15 to 20 degrees, in dry areas.

In all other sections, excepting those named following: 10 to 15 degrees.

In all or parts of Louisiana, Mississippi, East Texas, Arkansas, Tennessee, and western Alabama: 8 to 10 degrees.

Adjacent to large bodies of water: 5 to 8 degrees. Much greater drops are obtained under favorable

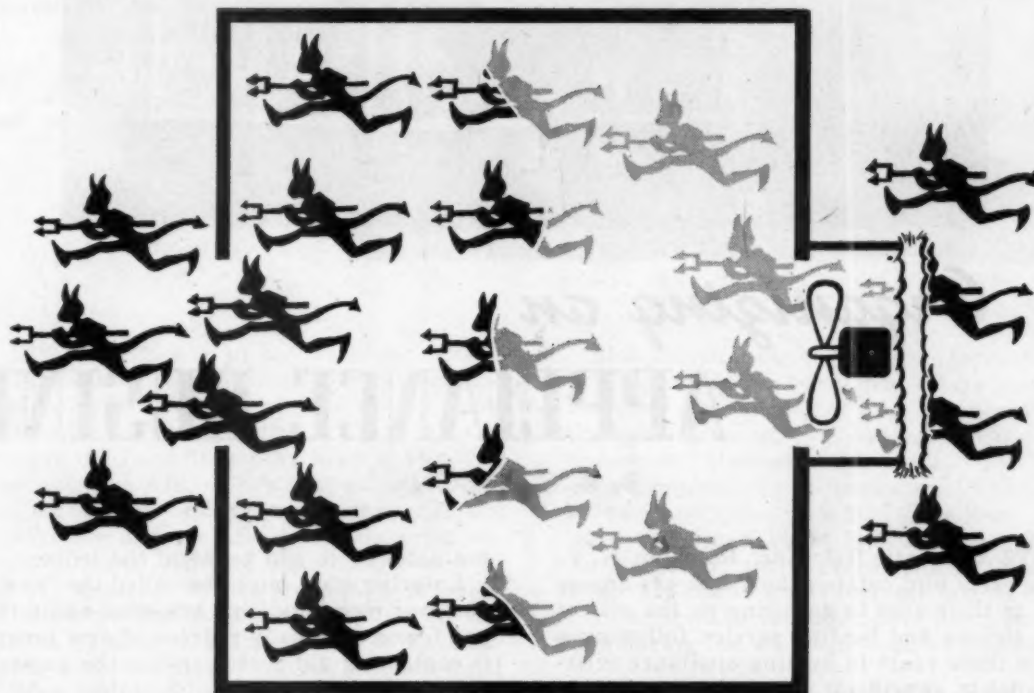
conditions. The foregoing is a conservative estimate. However, even the modest reductions listed produce surprising comfort.

Remember that large volumes of air are circulated in this process and even a small drop in air temperature, under such conditions, can bring surprising comfort. People frequently experience "shock" when passing from a room or building having the low temperatures produced by mechanical refrigeration, to outdoors and extreme heat. Evaporative cooled air never produces this sensation, as the human body, itself an evaporative machine, has been conditioned to this process since the beginning of mankind.

### Some Early History

Evaporative cooling, in its present "package" form, made its appearance in the Fort Worth-Dallas area in the early nineteen thirties. The author was among the so-called "engineering talent" who roundly condemned them as being entirely unsuited to our rather consistent humid area. Prevailing winds from off the Gulf of Mexico keep our air pretty wet, but we do get almost nightly cool breezes.

No dealer who was acquainted with one of us "experts" dared handle them. However, and fortunately, some of the local dealers were not impressed by our



If evaporative cooler is too small, cooled "units" (grey devils) will be too few to absorb heat in room air, so only partial cooling will result.

# WRONG

*Unit Too Small*

### Common Sales Experiences

Evaporative cooler salesmen frequently hear the following: "I suppose I should have the size you advise, but I believe the smaller size would do. It may not give me all the cooling I'd like, but at least it should help." Another line of customer reasoning goes thus: "A too small stove or furnace may not make my rooms very hot, but at least it knocks the chill off the air; why won't a cooler work the same way?"

If the salesman, either through lack of knowledge or because of a desire to make a sale, permits his customer to take the smaller unit, you can write your own story on what happens: (1) the customer gets unsatisfactory results and so informs all his friends and neighbors; (2) the dealer either takes the unit back or has an irate customer on his hands; (3) all the customer's neighbors are convinced that evaporative air coolers are no good. Compare the foregoing with the user who has a good installation and knows how to operate it. His friends and neighbors are anxious to have one of their own.

"book larnin'" and took on a few. Many of us, including the writer, have since eaten "humble pie." I still think they fall short of perfection, but who am I to quarrel with the many thousands of satisfied users throughout this "unsuitable" area? As a matter of fact, the writer's home and office is equipped with these coolers and we would find summers unendurable without them.

To get back to history: Dealers who sold the first units had little in the way of special knowledge to guide them, and users had less. Users were somewhat "leary" of these units and invariably bought the smallest ones they could find. Units were not only invariably too small, but were operated with the building tightly closed. Buyers had read the advertisements of refrigerated air conditioners and had seen them in operation in theatres, department stores or other places; what more natural than that they should adopt the same methods in operating any air coolers.

Results are easily imagined. Wall paper sagged. Furniture and doors warped. Clothes wilted. Hu-

(Continued on page 138)





## Organizing an APPLIANCE BUSINESS

By R. C. NASON

**D**IETZ Automatic Heat, Inc., Brooklyn, N. Y., believing the early bird catches the worm, are among first dealers in their area to get going on the sale of oil burners, stokers and heating service following a lull of nearly three years in heating appliance activities. E. H. Dietz, president, revealed recently that when his company entered this field 10 years ago, after over 40 years in the coal and oil fuel business, they coupled heating with fuel because of their close relationship and chose the residential field because it seemed to offer the best prospects.

The initial step was opening and equipping two show rooms, display floors and offices. One is in Ridgewood, the other in the outskirts of Brooklyn. In both cases corner sites were chosen and, again, in both instances, both stores have show windows on two streets. This is a cardinal point about merchandising, believes Mr. Dietz, for thus the oil burners, stokers, air conditioners, room coolers and automatic controls on display can be seen by the largest number of pedestrians.

The next logical step seemed to be acquiring some live-wire salesmen. At present the staff numbers 12, practically all of whom work on straight commission remuneration. Next Mr. Dietz employed four reliable mechanics for installation and service. They are on straight salary. Electric sidewalk signs, good, clean office furniture, afford the desired atmosphere for the display rooms.

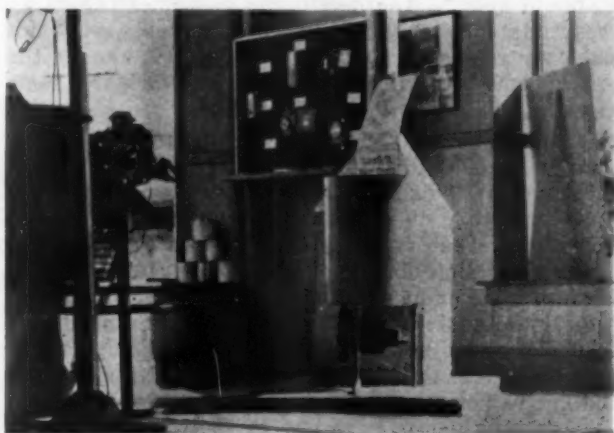
Barring further outline on such points suffice it to say that up until the war the organization sold from 300 to 400 automatic heat appliances of all classes per year and now are servicing several thousand installations. Like many another heating contractor, customer service on existing plants has kept the business alive and enabled it not alone to live

but actually to add profit to the ledger.

Entering what might be called the "new epoch," or post-war merchandising business, again the company has found two ready sources of new prospects. One is contacting old customers for the names of friends who might be interested; the other is by "cold" canvassing entire neighborhoods for prospects. As active prospects at present are greater in number than merchandise to fill the orders, the less urgent prospects are delayed until more insistent customers' orders have been filled. The less needy groups are booked for future delivery.

### No Special Literature Used

Despite other opinion to the contrary, here is one automatic heat contractor who prepares no special literature, form letters or blotters. The Dietz company uses the manufacturers' regular literature ex-



Left at top: Front view of show room on excellent location at triangular street intersection.

Left at bottom: Corner of show room with display of automatic hot water heater installation.

At right: Side view of show room—and how best use is made of manufacturers' advertising material.

At bottom: Another view of inside of show room—with maximum use made of product display.



clusively. But uses plenty of it. It is Mr. Dietz' experience that spasmodical mailing of costly, special literature is less effective than regular weekly mailings of standard advertising matter.

Another part of the selling plan here is allowing salesmen to roam at will. They can go anywhere. But if and when they find prospects they file the names in the office and are allowed 30 days for exclusive work on them. If they cannot be closed in this period the prospect becomes anyone's prospect unless the salesman has filed a reservation on the name or names. This allows him another 30 days exclusive rights and the process can be pursued until prospects have been definitely closed or allowed to lapse.

#### Summer Service Plan

In handling summer service, the campaign for which is started every May, this dealer owns and operates four service trucks each equipped with a portable electric vacuum cleaner. Clean furnaces mean satisfactory heating in the majority of cases, it is found, hence the cleaning campaign long has been a part of the plan for holding fuel customers. In fact, this work was a regular feature prior to Dietz' engaging in selling appliances.

Stoker-fired water heaters, automatic controls, low-water cutoffs, fans, humidifiers and similar accessories are displayed and are a regular part of the line. Some units of each, and of several popular makes, are stocked at all times. Yet another merchandising activity is insulation. The dealer owns a blower equipped truck for loose wool, also installs pads, slabs and other familiar types of insulation. Fuel scarcity, plus Government emphasis on insulation, resulted in great interest in this subject. The regular heating salesmen bore down hard on insulation during the war years and will continue to do so.

#### Insulation Profitable Sideline

Naturally, difficulty in obtaining burners and fuel in recent years brought out a latent demand for such products as insulation to make the coal and oil supply last out until further supplies were granted by the Fuel Administration. Having derived definite benefits from insulation, others have received firsthand testimonials from friends and they also want it. This makes this contractor happy and gives him an "in" for the sale of conversion burners plus improvements of other varieties. In innumerable cases, building and pipe insulation are part and parcel of appliance contracts.

#### Home Building Costs

THERE were 810,000 housing units erected in 1927. For the 1923-1937 period, the yearly average was 872,000 units. The banner home building year was 1925 with 927,000 units. A yearly average of 360,000 units were constructed during the 1929-1943 period.

A house that could be built for \$5,000 in 1939 now costs \$7,197 on the average, a rise of almost 44 percent. It is a boost of 88 percent compared with 1933.



# Essentials of Oil Burner Service

## Part VI

Some common motor troubles and failures—Wiring requirements and house loads—Types of motors used in oil burners—Motor, coupling and belt replacements—Checks before starting a new motor—Check list for use when motor fails to start

By E. F. Fuller, E. F. Fuller Engineering Co., La Crescenta, Calif.

ACCORDING to the returns on the eight-page questionnaire on heating equipment service, reported in February Artisan, only 10 per cent of service calls for oil burners were attributed to motor failures as follows:

- 5% Failure of motor to start. (See Motor Fails to Start this article.)
- 3% Burned out motors. (Take to Service Shop for repairs.)
- 1% Insufficient oil. (Before Starting Item 2 this article.)
- 1% Cut out points. (See Motor Fails to Start Item 3.)

The motor is the heart of the burner and the main spring that makes the burner tick. Motors should be mounted on a substantial foundation and securely bolted down so that the armature shaft is level, and the oil wells vertical. Ceiling suspension can be accomplished by turning the end brackets 180 degrees and inverting the motor so that the oil wells will be vertical. Side suspension can be made by turning the end brackets 90 degrees or bolting motor to the wall, so as to keep oil wells vertical. Every working part of the burner motor can be repaired or replaced, and if given a reasonable amount of attention, the motor will render trouble free operation for the average life of the burner without the necessity for costly repairs.

The characteristics of the electric current supplied to the motor is of prime importance to the oil burner motor operation so the service man will always check to see that current and motor match.

Individually owned and operated electric generators usually operate on low voltage current. A few public service electric power companies operate on 50 cycles and some areas supply direct current, but most electric current suppliers furnish, 110-220 to 120-240 volts, 60 cycle alternating current.

Before installing an oil burner, the dealer should acquaint himself with the various properties of the electric current supplied and check to make sure the burner markings correspond to the electric service.

The following instruments are necessary in order to check the current supplied to the motor: (1) Wire gage; (2) Volt meter; (3) Amp. meter; (4) Revolution counter; (5) Test lamps to detect grounded field.

### Alternating Current

The current described in this article is known as alternating current, A. C., because each wire changes or alternates continually from positive to negative.

The interval from positive to negative and back again is called a cycle. When this change takes place 60 times every second, the current is known as a 60 cycle current. When current flows through a wire, it creates a certain amount of heat. The greater the amperage, the larger the wire should be. A heated wire indicates wasted electric power. If the amperage is too great for the size of the wire, it may become so hot as to damage the insulation on the wire, or might even set fire to the building. Correct wiring will not heat wires. Therefore it is important not to overload your electric wiring system. In addition to heating, undersized wiring also causes a drop in the line voltage, which is a serious menace to oil burner motor operation. A drop of  $11\frac{1}{2}$  volts below motor marking, will produce only 90% of the full voltage, and the efficiency of motor will drop to 81% of normal power.

In order to be sure the burner motor will get its required amperage and voltage the service man should check the load on the circuits. The total service entrance load for all practical purposes in a building, can be calculated on the basis of the number of circuits and the total amperage of the fuses on the various circuits in accordance with the following table:

Circuit	Average Watts	Amperage of Fuse	Gauge of Wire No.	Allowable length of wire from fuse box, in feet
Electric Range ..	3000	30	8	75
Water Heater ....	3000	30	8	75
1-H. P. Motor ....	1000	12	12	70
1/6-H. P. Motor ..	275	5-12	14	110
Lighting circuit ..	1500	15	14	35
			12	60

#### Example:

To calculate the total service entrance load:

- 1—Electric Range ..... 30 Amps.
- 1—Oil Burner Circuit..... 12 Amps.
- 2—Lighting Circuits ..... 30 (2-15 amp fuses)

Total ..... 72 Amps.\*

\* (Requires No. 6 entrance wire.)

NOTE: No. 4 wire carries 90 amps.; No. 2-125; No. 0 wire carries 200 amps.

The oil burner motor must always be connected to a single circuit back to fuse box. (No lights or other household appliances shall be connected into the oil burner circuit.)

If the motor is not equipped with an automatic cut off device, a 1/6th H. P. motor (3.4 amps) should



be fused at 350% of ampere rating, or  $3.4 \times 3.5 = 12$  Amps. A motor with cut out over load switch should be fused at 250% of amp. rating, or  $3.4 \times 2.5 = 8.5$  amp. fuse.

NOTE: The actual flow of current for 1/6th H. P. motor while in operation is 5 amps. The added amperage is allowed for the starting torque of the motor.

The motor selected for discussion in this article is a "Split Phase," 1/6th Horse Power, 60 cycle, 3.4 amps, 1750 revolutions per minute (Diagram No. 21). This split phase motor consists of a squirrel cage rotor and a stator, which contains a main running and starting phase coil. The starting coil is connected to the line through a cut out switch shown in diagram No. 22. This switch cuts out when motor has attained about 75% of full speed, or about 1300 R.P.M., and closes when motor shuts down. The switch is opened and closed by the governor weight and guide washer assembly, shown in Diagram 23. When cut-out switch opens, the motor operates as a single phase induction motor. These motors are wound for single phase only. They have a normal starting torque, and are commonly used in oil burners, fans, blowers, etc.

#### Motor Couplings and Belts

In many oil burners the oil pump is mounted opposite the blower fan housing, from the motor, with shafts in direct alignment. In such cases the shafts are generally connected by a flexible coupling secured to each shaft with a set screw. If necessary to remove either motor or oil pump, the set screws in the coupling must be loosened. On replacing, care must be taken to maintain a perfect alignment between coupling and the two shafts. The replaced pump or motor should be carefully aligned and tightly bolted to burner housing before tightening set screw in coupling. Distortion of alignment would cause the coupling to wear out prematurely, and develop a noisy motor, and might finally cause an overload.

#### Replacing Worn Out Motor

When replacing a worn out motor with a new one, it is necessary to make sure the direction of rotation is correct by facing the front of motor, (not the pulley end). If rotation is from left to right, the rotation is clockwise, and from right to left, counterclockwise.

In case you are working on a split phase motor with leads to terminal box on the frame, TO MAKE MOTOR TURN CLOCKWISE, leads No. 1 & 2 must be joined to oil burner circuit wire "a" and 3 & 4 joined to "b", as per Diagram 24.

To turn the motor counterclockwise, leads No. 1 & 3 must be connected to wire "a" and 2 & 4 to wire "b", also shown in Diagram No. 24.

To reverse rotation on motor with leads fastened to binding posts on end brackets, change the upper red tracer lead with the lower red tracer lead as per Diagram No. 25.

#### Before Starting New Motor for First Time

Check the following:

- 1—See that overload switch (if any) is on.
- 2—Add about two teaspoon-fulls of a good grade of No. 10 S.A.E. mineral engine oil, that will stand the heat and cold test for lubricating oils, which will saturate the wool yarn oiling system. Thereafter, oil motor about every three months during the heating season.
- 3—See that motor is securely fastened to base.
- 4—On cushion mounted motors, the frame is grounded to the base by a wire concealed in the rubber ring. Paint should be scratched away to make good ground connection.

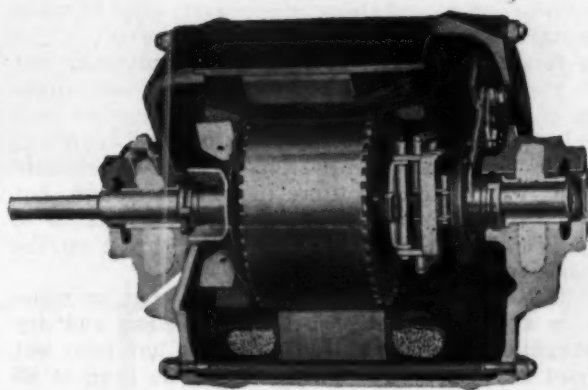


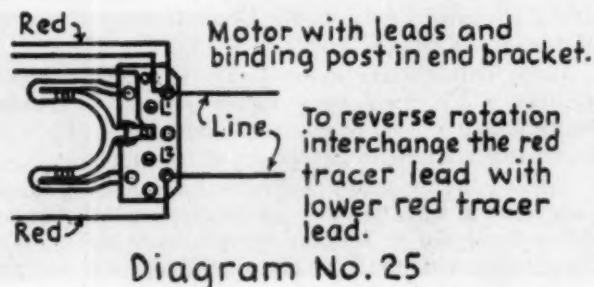
DIAGRAM NO. 21.



DIAGRAM NO. 22.



DIAGRAM NO. 23.



5—Start the motor and let it run for several minutes; stop and repeat this cycle several times to make sure starting and rotation of motor is correct.

6—If a belt is required, it should be adjusted just tight enough to prevent slipping. Also check alignment of driving and driven shafts, pulleys or couplings. Too tight a belt or misalignment of couplings or pulleys may cause an overload on motor, or rapid bearing wear. Correct these defects if found, but do not drive or press the pulleys or couplings on to the shaft without providing a counter thrust on the opposite end.

7—If motor has been exposed to dirt, grit, or moisture in a damp climate, or basement, clean and dry thoroughly. Never start a motor that has been wet without having it thoroughly dried in an oven at 85 degrees C, or 185 F, or by passing a low voltage current through the windings until dry.

Overloading the motor similarly to the overloading of the circuit, wastes current and causes the motor to heat up, which may cause the winding to burn out and short the motor.

#### **If Motor Fails to Start**

1—Check for blown fuses.

2—If "Fusetron" is used, see that fuse plug is screwed down tight.

3—With voltmeter, check voltage at motor. Voltage at motor should read within 10% of the voltage stamped on the motor name plate.

If voltage at motor drops 10% of normal, the efficiency of the motor is reduced to 81% of normal. Low voltage is likely to slow down motor so that the starting coil will not open which may burn out starting coil. In case of low voltage at the motor, check voltage first at the meter, or service entrance. If found low, it may be caused by an overloaded service circuit, or by too light a wire at service entrance. In such a case, see the local electric power supply company.

Low voltage in the burner circuit can be found by comparing the voltage at the meter with voltage at the motor terminals while burner is in operation. If loss occurs at the motor, check for undersized wiring and other loads on burner circuit.

4—Contact points on starter cut out switch (Diagram No. 22) may become dirty and prevent motor from starting. If dirty or pitted, clean, or replace cut-out complete with plate and holder.

5—If governor (Diagram No. 23) fails to operate, examine motor to see if it is covered with grease and grit. If so, ascertain the kind and grade of oil used on motor. Poor oil may result in gummy deposits forming on motor frame shaft, bearings and governor, which will clog governor and prevent motor

from starting. To clean, wipe off frame, remove the end bell of motor, slide the armature out, clean the shaft, bearings and governor, and return parts to the motor, taking care not to hammer, force, or damage delicate motor washers, and adjust motor to eliminate end play.

6—If overload device will not remain closed, send to service shop.

7—If motor becomes very hot and produces an electric shock when touched, use test lights. For field, ground across field leads and frame. If grounded, remove motor to service shop.

8—The motor in Diagram 21 has two windings, the main and the starting phase. In this motor both windings should be tested, and if either is found to be grounded, the motor should be removed to service shop.

9—Some motor shafts are equipped with cork washers at each end, to cushion the thrust. Wear and tear, hammering on the shaft, or excessive heat may destroy these washers, causing excessive end thrust, which in turn may interfere with the cutout switch mechanism. End play should not exceed .01 inch. Excessive end play should be corrected by the addition of steel end play washers on the shaft. End play must be adjusted so that the cutout switch will be closed at standstill and open when the motor is operating at full speed.

10—Excessive load may be checked by ammeter. The amperage should equal nameplate marking. Excessive load may prevent motor acceleration to normal speed, in which event the governor may not open the cutout switch and the phase winding may burn out.

11—If rotor rubs stator, clean dirt or burrs from each and add new bearings if the old show signs of wear.

12—Tight bearings may be tested by turning armature by hand. If tight and oil does not help, replace bearings.

13—Radio interference may be caused by:

a—A poor ground connection.

b—Static electricity generated by belts. (To correct, install ground connection.)

c—Loose contacts in switch fuses or starter. (Tighten loose connections.)

#### **To Insure Trouble Free Operation**

1—Oil bearings every three months during heating season.

2—Keep working mechanisms free from dirt.

3—Keep switch contact points clean.

4—Keep all terminals clean and tight.

5—Keep oil and dirt from rotor and stator.

6—Keep motor clean and dry.

7—Have service man check motor, burner and heating system once a year.

## **HH Ratings Still Good**

**P**RIORITIES for scarce building materials issued under the present Veterans Preference Rating System will remain valid and will not be affected by any change in regulations under the Veterans Emergency Housing Program, National Housing Expediter Wilson W. Wyatt declares.

Home builders are assured that all HH preference ratings which have been issued and are currently being issued will be honored by suppliers for 11 building materials now in extremely short supply.

There is no intention to check construction of homes progressing with priority assistance and the orders being developed to tighten controls over materials in accordance with the emergency program will not pre-

vent the completion of priority housing under construction, Mr. Wyatt said.

Priority Regulation 33, as it is now constituted, authorizes the extension of HH ratings to individual veterans or builders who agree to give veterans preference in the sale or rental of new housing not to cost more than \$10,000, including land improvements, or rent for more than \$80 a month.

Applications for priorities are received and processed by the 71 field offices of the Federal Housing Administration, acting as agent for the Civilian Production Administration. Since January 15, when the system went into effect, through March 7, slightly more than 200,000 applications had been received and about 134,000 had been authorized.

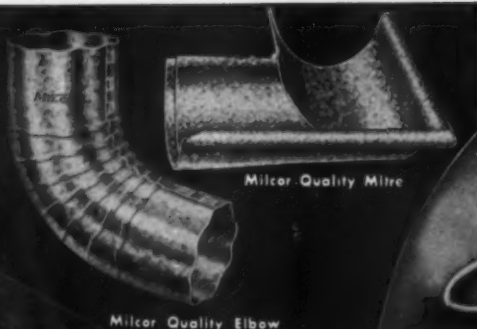
AMERICAN ARTISAN

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# FABRICATION OF STAINLESS STEEL

PART TWO

View of the Exhaust Manifold Manufacturing Division of Ryan Aeronautical Co.

Portable, counterbalanced spot welding "gun" for spot welding structures having very restricted clearances. It is water cooled and air pressure operated.

BY WILLIAM P. BROTHERTON  
Ryan Aeronautical Company  
San Diego, California

## Welding

**V**ARIOUS welding techniques play a vital part in the fabrication of the stainless steel parts. The fundamental differences between the processes is the source of heat used to fuse the metal. Metallic arc must be ranked first for quality of weld with the atomic hydrogen process a close second. The atomic hydrogen method is faster, but the metallic arc has a narrower heat area. Both produce about the same ductility. Oxy-acetylene gas is ranked third by Ryan as to quality. It has the lowest speed, widest heat area and lowest ductility.

Before welding the seams of the half-stampings, Ryan spot tacks the two parts together in a rapid system which eliminates jigs and provides perfect alignment for the seams.

## Spotwelding

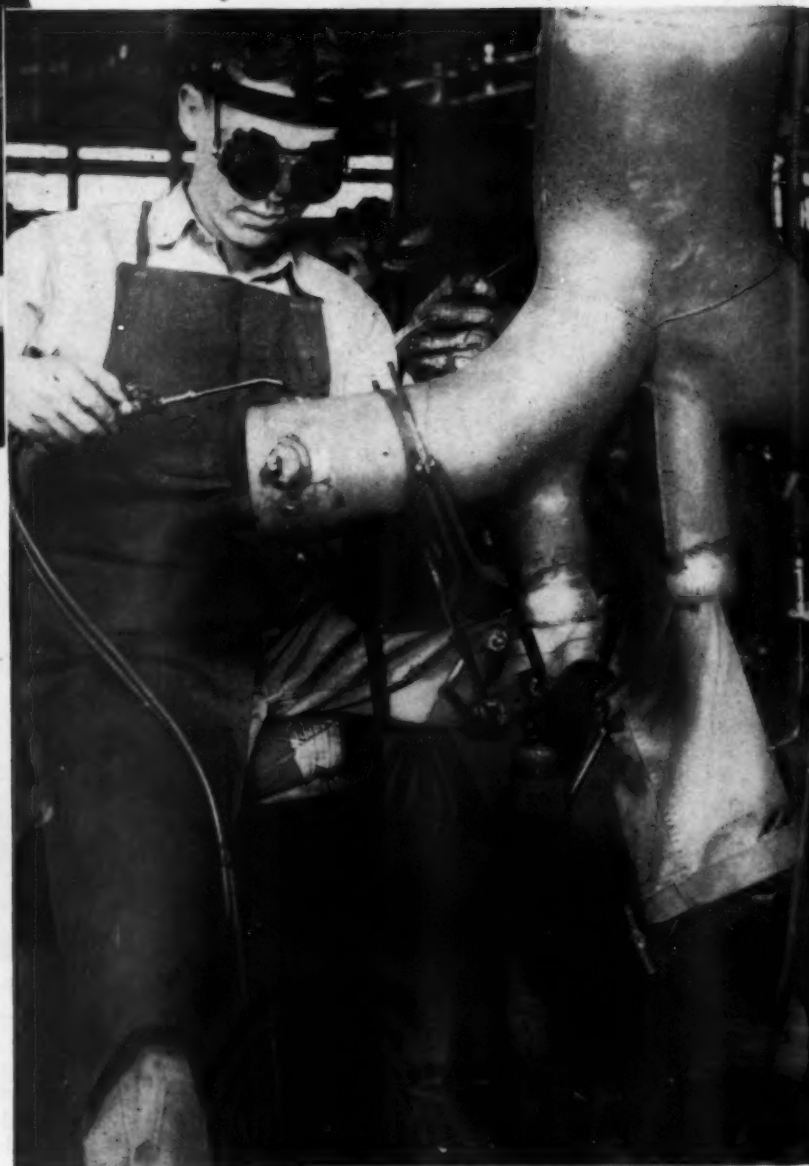
The stainless steels, especially the 18-8 types, are among the most adaptable to the spotwelding process due to their (1) long plastic range, (2) low heat conductivity, (3) resistance to formation of surface oxides, (4) ease of removal of oxides formed, and (5) high electrical resistance. Spotwelding is a rapid, economical method for joining in cases involving moderately loaded assemblies. Spotwelds develop full strength only when subjected to shearing loads. If the stress criteria is less than 80 per cent shear, a riveted or bolted connection should be used. Spotwelding is most economical when a production rate of 35 to 120 spots per minute can be attained. Clean, accessible design is the major factor governing this rate.

It is possible to spotweld several sheets of stainless steel together simultaneously and to weld separate pieces forming parts of the same assembly such as welding a flat sheet to a square tube or simultaneously welding a sheet to each flange of a channel. To satisfactorily weld multiple sheets it is preferable that the sheets be of the same material and substantially the same thickness. Metals of different composition but of the same basic material may be spotwelded if their differences in electrical resistance are compensated for by properly increasing the thickness of the metal having the lower resistance in the design. When welding sheets of different thicknesses together, the penetration will be greater in the thick sheet. This unbalanced effect continues with the thickness ratio until the practical limit of  $3\frac{1}{2}$  to 1 is reached. The use of projection welding may permit spotwelding of parts in excess of this limit and should be considered wherever the ratio exceeds 2 to 1.



**Above: Ryan employee spotwelds a doubler on a stainless steel exhaust manifold section. This method is quick, clean and economical.**

**At Right: Ryan welder closes the seams of a stainless steel exhaust structure by the oxy-acetylene gas method. Metal is being added from a filler rod.**



Spotwelding has several advantages for use with stainless steels; it is accompanied by a short, localized heating which does not produce harmful carbide precipitation and it produces no carbon pick-up. It is essential that parts be clean of grease, oxides or any other compounds which might cause electrical resistance. Wherever possible, spotweld assemblies should be designed so that standard electrodes can be used at right angles to the parts during the welding cycle.

#### **Oxy-Acetylene Gas**

After exhaust manifold stampings are spot tacked together, they are welded along the seams by the oxy-acetylene gas method. For this operation the parts are held in flexible holding clamps which do not restrict their movement due to heat distortion. The welder can control this distortion by directing the welding heat. Filler rod metal is added during this process. Four constants are sought by the operators—uniformity in height of weld, width, speed, and amount of filler rod. Inconsistency in height or width usually results from poorly fitted parts, incorrect rate or unevenly trimmed parts. Excessive penetration, or "burn through," is due to too high a flange, too slow welding rate or excessive width. Insufficient penetration is usually caused by low heat input, too fast welding

speed, improperly applied flux, or dirty scaly metal. Another defect which can arise is the "undercut" caused by too slow welding speed, insufficient filler rod or poor welding technique. The titanium-stabilized steels are susceptible to porosity, which tends to make a weld weak and brittle. Excessive puddling induces porosity. Smaller flame and tip and slower rate are helpful in overcoming this weakness.

Because oxy-acetylene affects a larger area than the other welding methods and is slower, the thermal stresses set up are greater. Care must be taken to prevent cracks caused by welding stress. Post-heating on the area surrounding tack welds prevents cracking.

#### **Atomic Hydrogen**

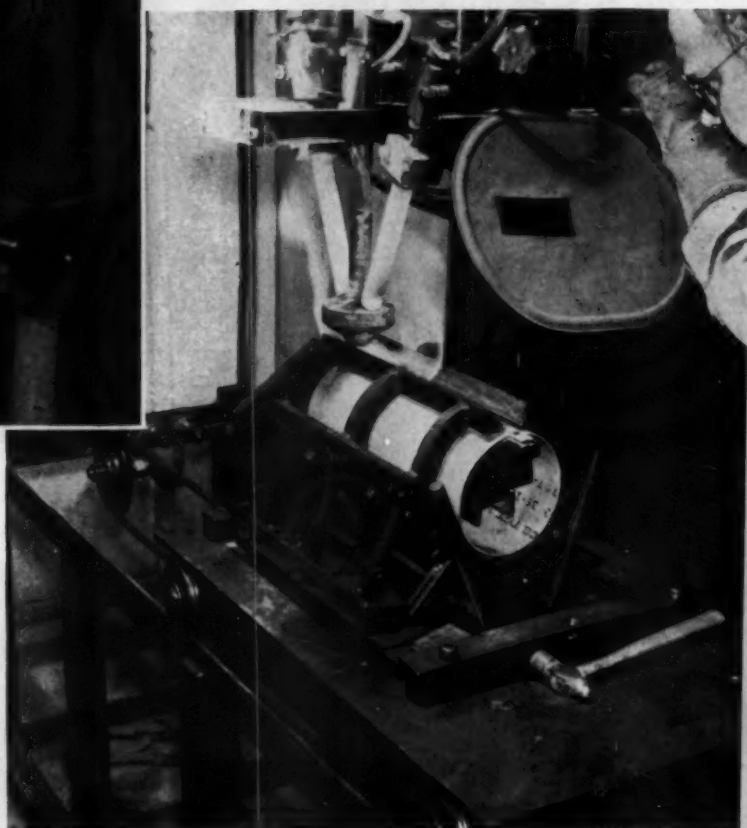
A large percentage of the manifold sections are welded by the atomic hydrogen process which is extremely fast and clean. This added speed derives from the extra heat which is obtained from the electric arc stream and the molecular change of the hydrogen gas. The envelope of hydrogen eliminates the danger of carbon pick-up and protects the weld metal from oxidation. At the Ryan Aeronautical Company we estimate that atomic hydrogen is about half as expensive as oxy-acetylene because of the greater amount of work which can be turned out per day. Ryan has de-





**At Left: Spot tacking with the metallic arc welding method in the jig of an exhaust manifold at the Ryan Aeronautical Company.**

**Below: Ryan-designed automatic atomic hydrogen welding machine which steps up the production of exhaust manifold tubes to 28 inches per minute.**



signed and built its own automatic atomic welding machines which produce uniformly smooth welds at the rate of 28 inches per minute. Practically the same defects occur with atomic hydrogen as with oxy-acetylene except that they occur more quickly due to the high welding speed. One additional imperfection which may develop is "worm-holing" caused by trapping of gases in the weld metal when the rate is too high.

#### **Metallic Arc**

When the exhaust manifold sections have been seam welded by the oxy-acetylene gas or atomic hydrogen techniques, they are immersed in a molten salt bath to relieve the welding stresses and remove any flux. This bath was devised by Ryan laboratory chemists and is the only molten salt bath which satisfactorily heat treats 18-8 stainless steel. It operates at about 1,700 deg. F. and completely cleans and stress relieves the steel in 5 minutes, producing a bright surface. The sections are rinsed in a water bath, trimmed and sent to the pre-jig department.

These jigs are carefully designed steel tools for insuring the correct dimensions of the exhaust systems which must be mated to high-precision engines. The jigs are not made from engineering drawings, but are designed to allow the shrinkage which occurs in welding to warp the parts into their correct position.

The main body of the manifold ring is fitted into special brackets which, while permitting the required amount of movement, still control the direction. Supplementary jigs incorporate the same feature. This problem of controlling distortion during welding has

been solved by the process of trial and error with the result that after long experience it has been possible to arrive at the required tolerances between jigs used for assembly and those used for final checking. The tubular exhaust sections are spot tacked together in the jigs by means of the metallic arc method. Actually this spot tacking is the only welding that is done while the parts are in jig except in the cases where critical dimensions must be attained in a weld which cannot be worked on afterwards. Generally, the spot tacked sections are taken from the jigs and the lap joints are welded by the metallic arc process. Doublers are welded on at this time. The parts are then returned to closer tolerance assembly jigs and checked. Changes in the contours of the stainless steel necessary to conform to jig dimensions are made by heating and hammering the metal. At this time additional parts, such as hangers, are welded on the assembly. The completed exhaust system is subsequently removed and placed in the final jigs which correspond



**Top: Ryan technicians carefully measure dimensions of exhaust manifolds to insure their perfect mating with the close tolerances of high precision engines.**

**Bottom: Ryan manifold employee checks the alignment of a large stainless steel collector ring with the final jig.**

to the exact dimensions of the engines for which the manifolds are designed. Changes are made by mechanical means to obtain perfect alignment.

In utilizing the metallic arc welding method care should be exercised to avoid the defects of "burn through," "undercut," "cracking" and "flux pockets." Burn through, usually associated with lap welding, is sometimes not serious but it lowers the corrosion resistance of 18-8 stainless; it must be avoided. If the voltage or amperage are too high or the weld rate is

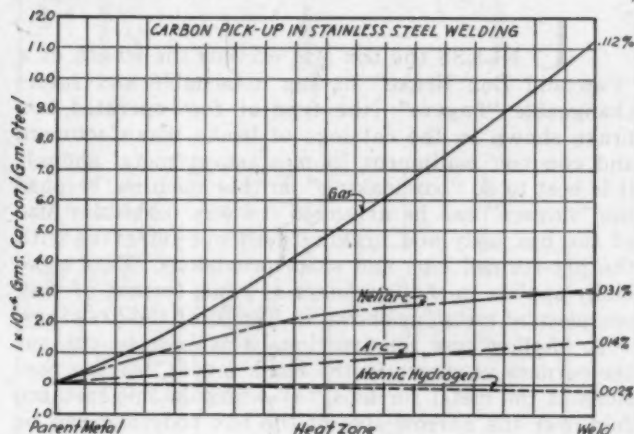
erratic, burn through may result. Overlap, or cold weld, is characterized by lack of fusion between parent metal and the weld metal. It is often caused by too low voltage or amperage, too fast travel or flux from the electrodes getting ahead of the weld metal deposit. Cracks are not characteristic of the metallic arc process when using 18-8 stabilized electrodes. They are more likely to occur in high carbon and alloy steels such as X4130 or 25-12 stainless. The commonest causes of cracking in 18-8 stainless are excessive cold working after welding, extremes in light to heavy gauges which cause shrinkage stresses and shear or tension loadings while the weld area is at 1,200 to 1,600 deg. F., the "hot short" temperature. Undercutting arises from three causes—excessive heat from too high amperage and voltage, too high a rate of electrode travel, and concentration of heat on one plate resulting from electrode angle. Flux pockets and inclusions are defects that occur when the metal is



At left: Fittings for Ryan-Built Exhaust Manifolds are quickly attached by means of the electric arc welding process. Each weld seam receives many inspections for strength and smoothness.

not clean and when improper technique is used. Designs that have closed angles encourage flux pockets. Too low welding heat prevents the flux from becoming fluid enough to float on the surface of the metal. Large misshapen tacks may trap flux if insufficient care is taken.

Concentrated effort in the manufacture of stainless steel structures for war has pushed our knowledge of this metal ahead by a generation. From the research laboratories of manufacturers like the Ryan Aeronautical Company has come a compilation of valuable facts and "know how" which will adapt this rustless metal to many more applications now unsatisfactorily met by ordinary steels.



## Iowa Launches State Ass'n



AS BRIEFLY announced in the February issue of the AMERICAN ARTISAN, a group of well-known Iowa contractors met in Cedar Rapids recently to discuss the feasibility of organizing a state contractors' association. Considerable progress was made and the decision was arrived at to circularize several hundred Iowa contractors inviting them to attend a meeting in Des Moines on April 20.

Officers and committees pro tem. were elected as follows: Chairman, D. J. Maresh, Cedar Rapids; Secretary, E. H. Gundling, Cedar Rapids. Publicity Committee for the April 20 meeting: D. J. Maresh, E. H. Gundling and M. Lorenc, Cedar Rapids. Chairman of arrangements for the Des Moines meeting, M. Walddinger.

The meeting in Cedar Rapids discussed various activities which a state association, if organized, can undertake. It was determined that the number one

item of activities could be the outlining of a procedure whereby Iowa contractors may apply for approval as a sheet metal shop to train GI apprentices.

Number two activity could be the setting up of suitable representation through officers and committees in order that sheet metal, roofing and warm air heating contractors in Iowa might be adequately represented on all legislative matters in the state capitol. Number three activity might be the obtaining, through committees, of up-to-date rulings on sales tax problems and how to apply the state and federal sales tax in Iowa. Another activity agreed upon was the establishment of committees, and through the secretary's office for the dissemination of information on existing wage agreements in Iowa, plant union wage rates throughout the state, a tabulation of current labor charges as followed by Iowa contractors. The group

(Continued on page 142)



# Getting the Most Out of Your Press Brake

1001 Standard and Special Bending,  
Forming, Flanging, Punching Operations  
Your Press Brake Can Perform

By Ernest E. Zideck  
Sheet Metal Consulting Engineer

## Box Construction in the Press Brake

UNLESS the box size exceeds the length of a "Pan and Box Brake" having detachable and interchangeable "fingers" (the type of foot operated box brake shown in the catalogs of brake manufacturers and common equipment in most sheet metal shops), it is best to do "box making" on this machine, because the "fingers" can be arranged for any particular size of the box body and braking need not interfere with the pre-formed laps and seam provisions. This especially applies to shallow boxes or pans, formed of only one piece of metal, as shown in Fig. 1, of the drawings.

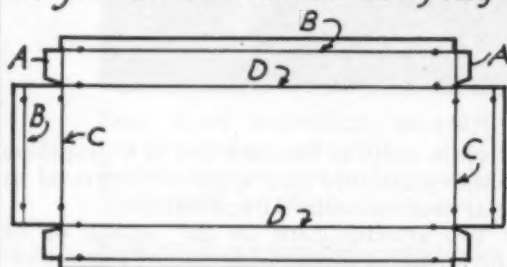
In shallow box construction, it is best to cut out the corners as shown in the blank layout, leaving portions of the metal for laps "A" which in this instance fold over the narrow side of the box body and can be either spotwelded to it, riveted, or merely soldered. In the layout shown, the reinforcing, turned edge, "B" (or turned for "wire" as shown in Fig. 3), can be formed to advantage in a press brake. Also the 90-degree bends C-C can be done in the press brake, leav-

ing only the D-D bends to be done in a box brake. If we want to cut a male die to the right length, we can complete the D-D formation in the press brake also. In most cases the reinforced "B" will be completed (by a flat die-set operating in the press brake) prior to formations C-C and D-D. But in other cases, where spotwelding is desired through the lap "A" before "B" is turned over it, or where "B" is intended for holding wire, the procedure depicted under Fig. 2 may be employed.

This forming in the press brake necessitates cutting the press brake dies to a length required for tongue of Die "E", for instance, to move inside of the formed box sides or ends. Here we perform the "corner joining" first, with the Die "E" cut to size bending down the reinforcing edge as shown in views 1, 2, 3 and 4 in Fig. 3.

This "closing" of the reinforcing edge "B" will be applicable especially in working heavier gauges of metal. If we flatten the edge "B" previous to the up-

Fig. 1 Shallow box body layout.



One piece blank

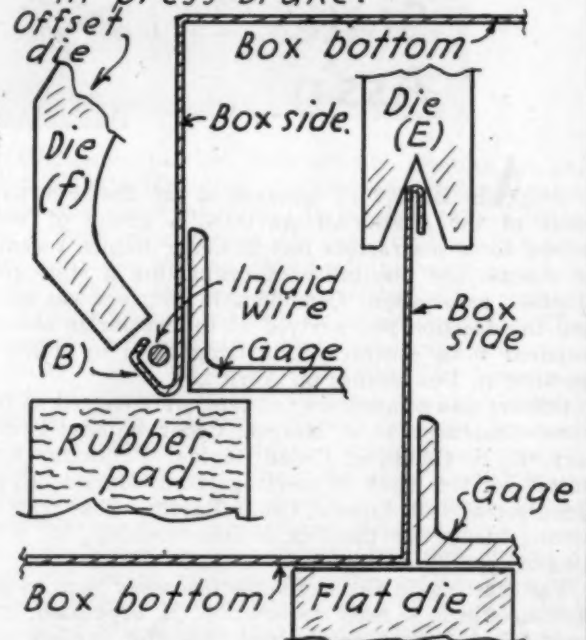
A-Corner laps for spotwelding, riveting or soldering.

B-First braking operation all four sides, past 90 degree bends.

C-C-Second operation, 90-degree bends.

D-D-Third operation, 90-degree bends.

Fig. 2- 4th & 5th operation closing (after corner joining) in press brake.



turn C-C (Fig. 1), we must open the closure for the laps "A" to slide in, and if the metal is thick, much handwork is required in opening and closing the "lap." The "offset" die employed in the closing of "B" (Fig. 2) over an inlaid wire needs no cutting, because the die works on the outside of the box. A rubber pad may be substituted for a special die in the closing of the metal over the wire. The downward travel of the die "F" will press the metal of the edge "B" into the rubber, the wire will be pushed downward, with the metal closing over it. Adjustment of the gauge for this work will have to be experimented with to arrive at the right position of the edge "B" under the die "F."

As stated, the forming of boxes or pans in a press brake is chiefly a matter of choice. If there is a box brake long enough for the work at hand, we can employ this brake to advantage at least in the upturning of the "narrow" sides of the one-piece box body. We can do the B-B and the D-D forming in the box-brake, too, although a press brake will give a more uniform and a smoother job. But whenever the box or pan to be formed exceeds the length of the box brake at hand, then it will pay to do the work in a press brake, even if we must cut a die to the length required. If the dies are cut smoothly and uniformly on a 90-degree angle, we can later employ the die pieces side by side to form longer strips of metal without the cuts leaving perceptible marks in the metal.

#### Closing the Edge

Fig. 4 shows a "flat" die A-A, employed for closing the edge "B" in box-making. Without the die having the indicated slope, the brake bed will interfere with the positioning of the box side (or end) for closing the edge "B." But with a slope in the die, the box body will clear the brake bed amply for the operation. The die "A" is identical for male and female counterparts and only the female part needs to be cut to box size. The die A-A will close the edge "B" easier than would the procession of operation by a female "V" die depicted in Fig. 3. Also for the in-laying of wire or rod into the preformed edge "B," shown at 5 and 6 in Fig. 3, the die A-A will perform as at 6, closing the metal sufficiently for operation of die "F" in Fig. 2. (This die "F" is a standard offset-die offered by all press brake die manufacturers.)

The "seamed" pan or box is often preferred to a riveted or spotwelded box for the following reasons:

- (a) Riveting or spotwelding of the "laps" to the box body does not render the vessel watertight and it still must be soldered, to hold water, oil or other fluid.
- (b) Spotwelded metal will not easily solder.
- (c) Riveted lap joint is liable to be apart in-between the rivets, consume a volume of solder, and present an unseemly appearance.
- (d) The seamed joint holds the metal locked, a minimum of solder is required to make it tight, it solders easily, and its appearance when completed is without blemish.

Boxmakers try to get away from "seaming" the corner joints because most of the seaming work necessitates *hand work* with a hammer or mallet or special machines and fixtures. In quantity production it pays to have special machines and the fixtures. But for general run of orders for only one or a few pans or boxes of a special size, special fixtures would be too costly and the machines would not apply to all the sizes and shapes. Therefore, whenever a "seamed" pan or box is preferred, the press brake can be adjusted for the work. In not too large "end-seaming" the machine shown in Fig. 6 can be adapted for a

Fig. 3 Progression of bend.

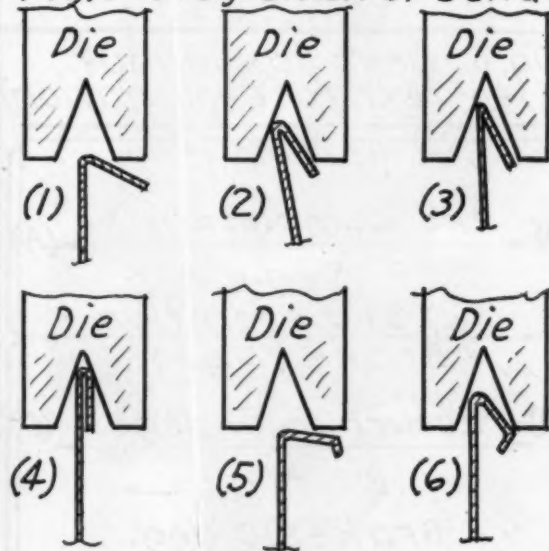
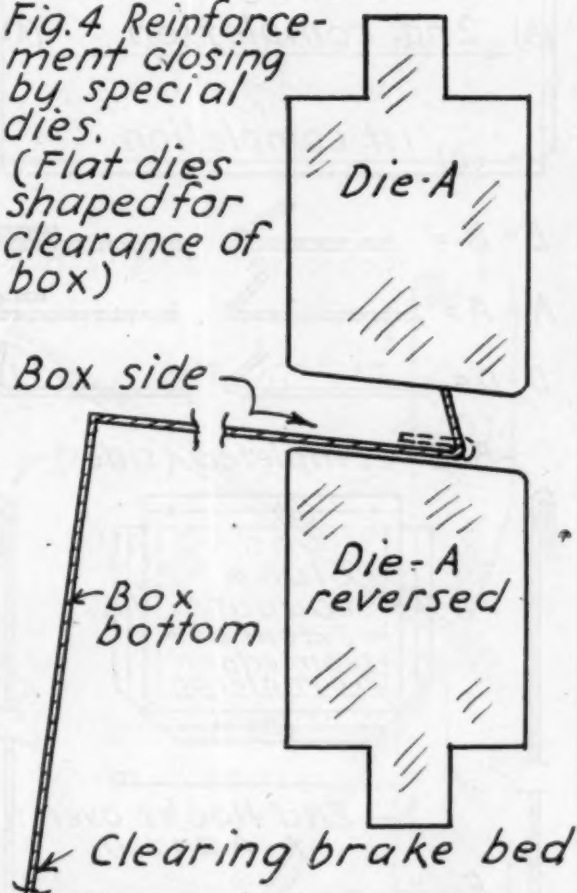


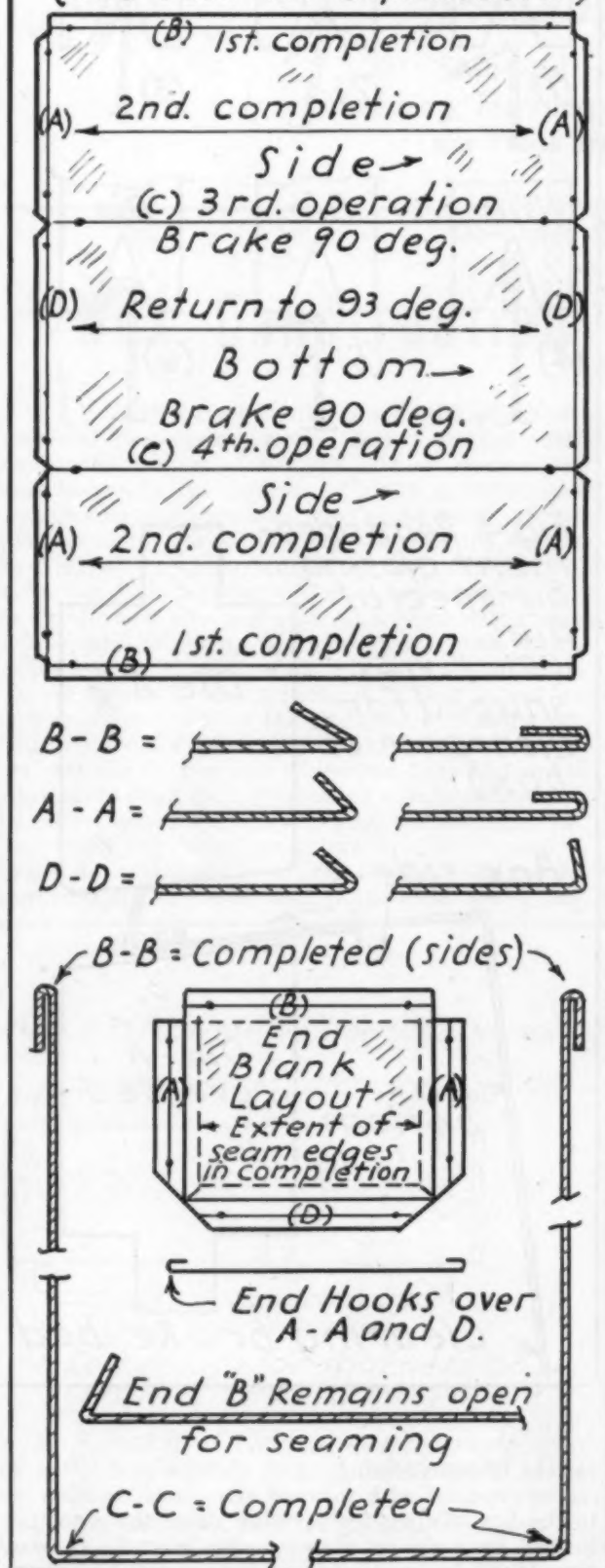
Fig. 4 Reinforcement closing by special dies. (Flat dies shaped for clearance of box)



variety of seam-closing. Also the dies A-A (Fig. 4) can be provided with forward extensions reaching out to the box bottom, for pressing down the seam preformed in a die-set shown under Fig. 7. In some cases it will be practical to do end-seaming (after pre-forming); at the end of the brake, with the flat dies protruding outside of the brake-bed, with  $\frac{1}{4}$  or  $\frac{3}{8}$  plate pieces bolted to the end-face of the die, or the



Fig. 5 Deep box layout.  
(see text for explanation)



plates provided with "tongues" fitting into the beds provided for them.

Deep boxes are usually of three pieces: (1) the body, (2) the one end-closing "end," and (3) the second end-closing "end." The body is formed to provide the bottom and the two long sides to the box, as shown in Fig. 5, blank layout. In this layout, assuming that the box is of a length impractical for handling in end-seaming (or riveting, or spotwelding) (with steam or lap folding over the "end"), the seam or lap is shown to fold over the body-sides and the body-bottom. In this construction the designer or layout man must consider that a box over 40 inches long will not fit lengthwise under a stationary spotwelder, nor over a bench stake for riveting, or be handy for seaming with the seams folding over the "ends" at an elevation of over 40 inches from the floor. In this layout (Fig. 5) we see the lap or seam A-A, the reinforcement (doubled metal or metal turning over wire or rod), B-B, the body upturns C-C, and D-D indicating the bottom seam-edge returned to slightly past 90 degrees position to facilitate the insertion over it of the 180 degrees turned seam-provisions of the "ends."

#### Eliminate Hand Work

Again, in the form of the box, B-B is formed first, A-A second, and C-C last. B-B might be formed by an "air-bend" to about 100 degrees, for closure after the "ends" have been secured to the body. Similarly the A-A bend might be formed "in the air," but this upturn, if it be for "seaming," is closed down, leaving it open wide enough to receive the thickness of the metal of which the "ends" are made. The C-C bends can be either air-bends or sharp, depending on the kind of box we want to produce. In closing the A-A bend we do so in parts only, leaving the upturns in the bottom part wide open. The operation D-D can be done by a 90-degree die operating on a flat female die. Hand work, hammering, should be the last resort; it takes much more time and it disfigures the metal.

In viewing the several drawings it must be borne in mind that boxmaking cannot be reduced to one, single, simple case. There is a great variety of pans and boxes; what is shown in these drawings is intended to be "leads" merely, one or the other of the leads applicable in one or another instance, but not generally.

Thus, in the "End Blank Layout" shown at the bottom of Fig. 5, we see the above described end-seaming exemplified, with dotted lines indicating the seam folded over the "end" instead of over the body itself. The blank will be smaller by portions marked by lines crossing A-A and D, and the A-A and D of the body will be that much wider. The cutouts in the corners of the "end" are not standard.

In many cases it is desired that the "lap" or seam reaches upward under the folded-over B-B. In other cases the box-maker prefers the B-B not showing bulges which result from a lap or seam underneath. Especially in boxes having wire or rod inlaid in the B-B, the lap or seam reaching up under the wire will cause disfigurement in the so-formed upper rim. Corner cutouts are best if they allow for only a juncture of the seam or lap with the closed B-B, although where looks are less important than strength, the lap or seam is best if allowed to reach under the B-B. In these cases the B-B should remain open until the seaming (or spotwelding or riveting) has been done, closing it in completion of the job. In cases of inlaid wire or



rod, where the latter in itself provides strength to the joint, the corner cutout in the "end" piece may provide for only a juncture of the lap or seam with the edge of the metal curled over the inclosure.

In Fig. 6 we show a machine, operating like a press brake, which is practical for use in box-end seaming as well as in seaming for which originally designed. The extended "arms" of the machine holds dies which can be either flat, or one of which is provided with a groove for seam burying, locking the seam. If we insert the box body-end over the lower arm (die) of the machine, with the preformed end-formed end-seam (pre-formed as shown in Fig. 7), coming under the pressure of the upper arm (male die), the stroke of the press will close the seam tight to the metal of the body (or to a tightness predetermined by the adjusted depth of the stroke).

This "seam-closing" will be practical at the "sides" of the box only. But if we are not particular about the "looks" of the seams closing over the bottom portion of the box, we can let the machine run, striking to the desired depth, and move the box along, the seam closing (as by a hammer), by stages. If we adjust the stroke of the arm (die) for *progressive* pressing down of the seam, and repeat the operation, the seam closing by only 1/16 or 3/32-inch at a time, (holding the box continually in a rectangular position in relation to the surface area of the dies), we shall receive a closed seam showing no "hammer" marks. For quicker and smoother end-seaming by this machine we can provide 3/8 inch or thicker material plates secured to the ends of the arms or dies or provided with "tongues" fitting into the receptacles of same (die tongues), and perform the seam-closing of the bottom portion of the box by these means.

#### Adjusting the Press Brake

Any press brake can be adjusted for this box-end-seam-closing by moving the pair of flat dies to protrude over the brake bed, doing the seam closing at the box sides in the flat dies (as above described), and eventually providing the ends of the flat dies with plates or having the plates or suitable pieces of steel fastened to the brake by tongues directly. The pre-formed seam will easily close by the operation of the dies or special attachments to the dies, and there can be no harm done to the press brake by this work done "outside" of the brake bed. The press brake in this connection would operate similarly as the machine in Fig. 6.

In Fig. 7, with a standard upper die operating over a simple other such die, the seam is shown to close over the "box end." The descent of the upper die bends the three thicknesses of metal over the *pointed* lower die, the end locking the seam sufficiently well for the final closing operation performed in the press brake, as above described. But to secure the box-end upturn of metal in the "cup" formed by the metal of the body, as shown, it may be necessary to insert a metal plate or wood into the box, these means fitting tight into the box and pressing the seam together while the die operation takes place. Wood might do better service in this connection than a metal plate, and inasmuch as 3/4- or 1-inch thick wood of the required size is inexpensive, it should be employed instead of depending on the "point" of the die holding the end-piece in position.

If boxes exceed a length unsuitable for press brake "closing" of the seam, and if the length can be operated by elevating the die "H," the seam may be

(Continued on page 140)

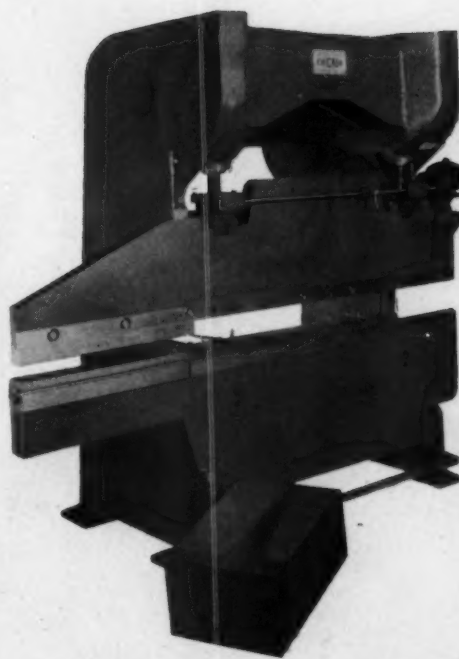
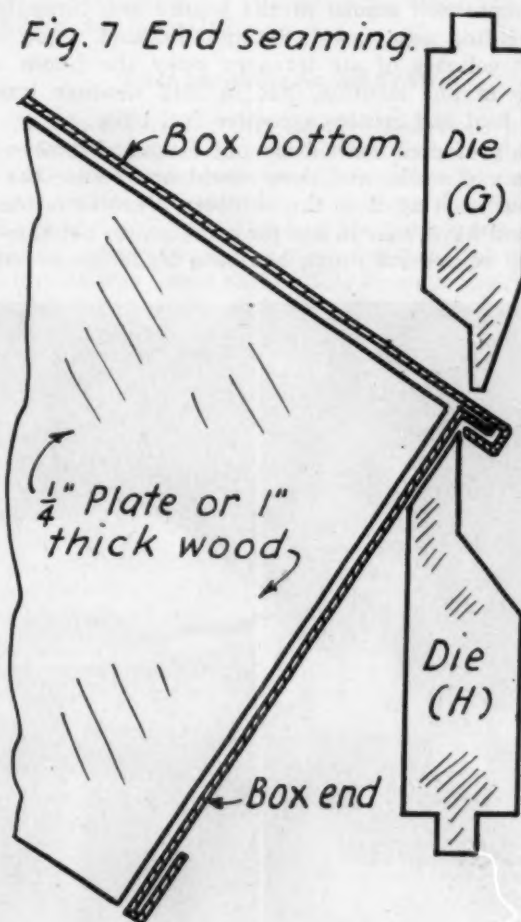


Photo by courtesy of Dreis & Krump Mfg. Co.

Fig. 6 Special fixtures and dies for box making

Fig. 7 End seaming.





Left—"Precipitron" at left and furnace at right. All air is circulated by "precipitron" fan. Below — The exhaust line above and supply below before supply was moved to outside of line of columns (see text). Note smoke at ceiling, but air clear in booths. Facing — Diagram of system showing supply line before and after testing.

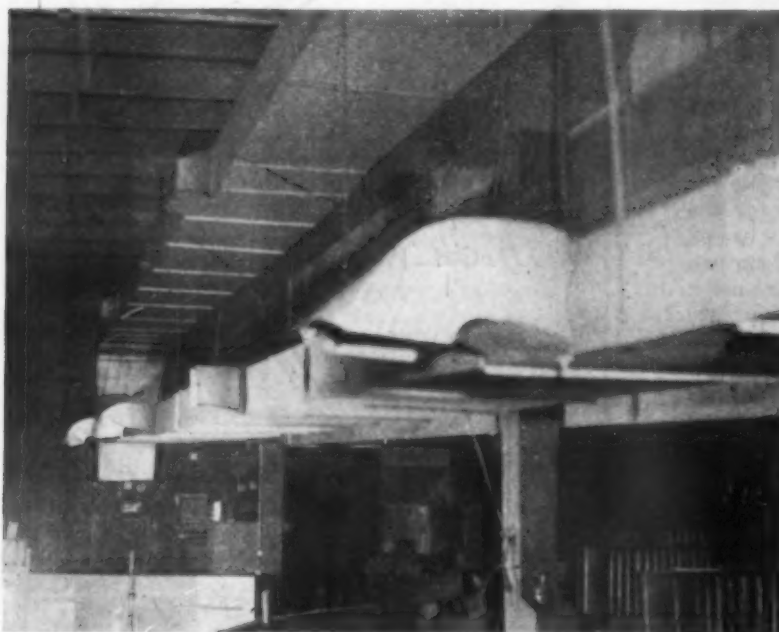
## Electronic Cleaning for Welding Fumes

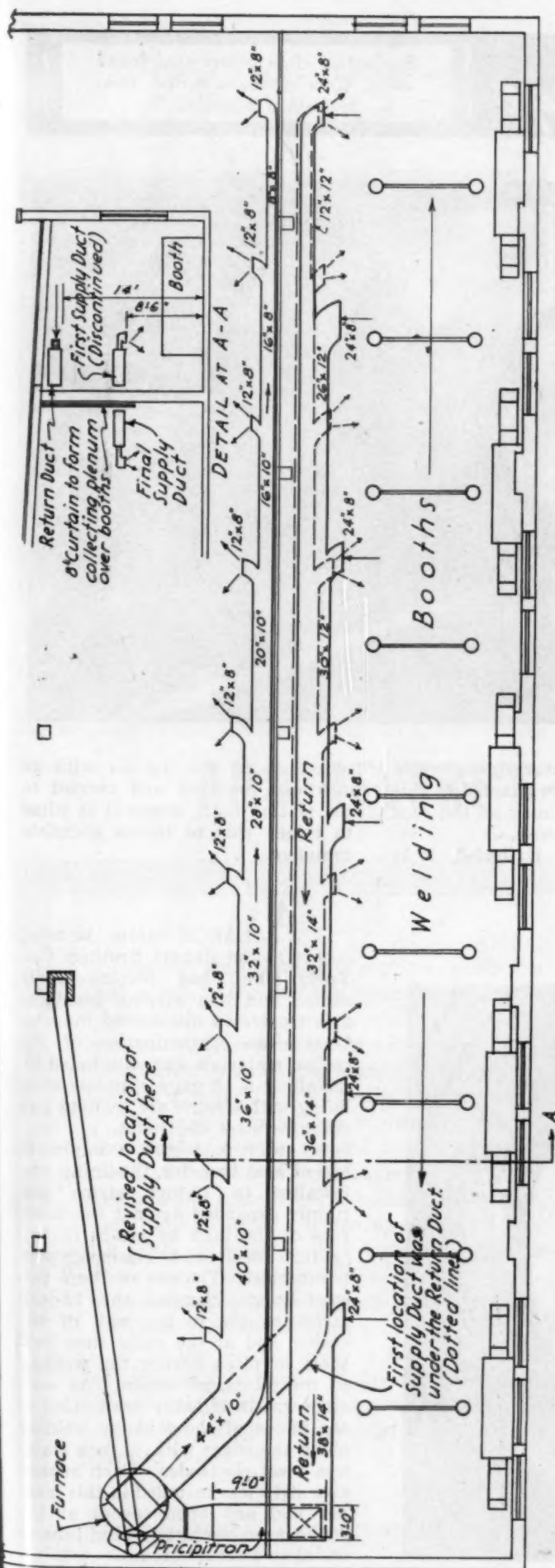
A SERIOUS problem in manufacturing where arc welding is employed is the concentration of welding fumes and smoke in the booths and throughout the welding department. Straight exhaust, using sufficient volumes of air to carry away the fumes and smoke is one solution, but in cold weather wastes much heat and creates excessive fuel bills.

The preferred method is some means to remove the fumes and smoke and then reheat and re-use the air without wasting it to the outdoors. Various means to this end have been in use for some years, but a method and equipment which has been made commercially

practicable during the war period is the Precipitron. This is a patented unit employing the principle of electrically charging each particle of smoke or dust; the charged particles are then attracted to grounded plates in the unit. Particles as small as  $1/250,000$  of an inch may be removed from the air by this method.

An application of this electrical air cleaning to a large welding department is shown in the drawing and photographs. This installation is in the plant of the Waterman-Waterbury company, Minneapolis. Eight welding booths are served. Prior to the installation of this system, the dust and smoke became so objectionable that operators' efficiencies were reduced





and a health hazard was encountered.

The application of straight exhaust was first tried with the fan at the roof and while this was satisfactory in warm weather, the fan exhausted so much air that in winter the entire factory building was cold and fuel costs went out of sight. Further, the suction of the fan was so great that the draft in the factory chimneys was reversed, sucking coal gas into the plant, and making it difficult to keep the interior warm.

### Details of System

As the plan shows, the welding booths were re-located along an outside wall. The electronic air cleaner was placed at one end of the row of booths; adjoining the cleaner and connected to it is a large furnace which heats the air after cleaning. Thus the welding department is isolated from and made independent for heating from the heating system for the other parts of the building. A three horsepower propeller type fan of 6,000 cfm. capacity against the encountered one (1) inch of static resistance is a part of the electronic cleaner and serves as the motive force for the cleaning and heating system.

To collect the fumes and smoke, a duct line with intake openings at approximately 20-foot intervals was placed along the columns of the bay containing the welding booths. This duct is close to the roof, about 14 feet above the floor. Thus the fumes and smoke rising to the ceiling are drawn into the return duct and passed through the electronic cleaner.

After cleaning, the air is forced through the furnace by the cleaning unit fan and heated. From the bonnet of the furnace a supply duct is located alongside the same columns and from short branches with elbows the heated air is distributed along the booths. Thus no air is wasted.

### Duct Location Found Critical

Two locations for this supply duct were used. In the first installation (when the photographs were taken) the supply duct was placed directly under the return main, but only 8½ feet above the floor with elbows attached to the end of the branches to direct the air down toward the floor and into the welding booths. It was found that in this location the pressure of the warm air streams served to force the smoke out of the booths and under the curtain instead of up to the roof where the return duct could pick the air up.

So the supply duct was taken down and moved to the outside of the row of columns and reversed so that now the branches direct the warm air away from the row of booths and the air streams do not break up or interfere with the smoke laden air rising to the roof.

As now operated, the exhaust is the motivating force determining the flow of air. The exhaust pulls the air upward and out of the welding department. The lesser force of the supply directs the warm air away from the booth, but after leaving the supplies the air drops to the floor, then moves at floor level into the booths. The operators, being on the floor are warmed while the smoke laden air encountering no interference rises to the exhaust openings.

The revised system is so satisfactory that the roof exhaust fan has been discontinued; the air in the booths is singularly free from fumes or smoke; the welders are warm in the coldest weather; and the remainder of the factory building can be readily and economically heated.



# The Idea Exchange

Production ideas others have found useful. Your ideas are invited. Illustrate if possible.

## Chicken Wire Plating Rack

A NEW type plating rack developed by Frank Rohr of the Finishing and Plating Department is saving many man-hours in the handling of small aircraft parts at The Glenn L. Martin Company, Baltimore, Md.

Extremely simple in construction, the new rack does away with the individual hanging of numerous small parts and at the same time insures that the surface to be plated faces the anode, thus guaranteeing uniformity of metal deposit and cutting down on rejects due to uneven coating.

The basic design of the rack consists of a tubular metal frame work across which wire mesh is stretched in the manner of an old fashioned bed spring. Some of the frames are covered with chicken wire; others with a larger mesh material to accommodate various size parts.

In use, parts are placed in the frame by slipping the ends through the wire mesh where they are held



in place by the natural pressure of the wire. Parts not adapted to this procedure can be hung on the rack with small wire hooks.

When the rack is loaded, it is

picked up by the top bar with an overhead conveyor and carried to the plating bath, where it is tilted to either side to insure complete drainage.

## Inside Expander



A LARGE steam jacketed cooker at the Hobart Brothers Co., Troy, Ohio, had become badly rusted and was causing considerable trouble by discoloring the contents. The contamination of the cooked materials was eliminated by installing a 16 gage stainless steel lining with electric arc welding and stainless steel electrodes.

In order to insure a minimum loss of heat transfer, the lining was installed in 12-inch strips and tightly expanded against the inner face of the tank by means of two ¼ inch steel bands equipped with turnbuckles. The use of these two steel bands clamped the 12-inch strips snugly to the wall of the cooker and at the same time held them in place during the welding of the joints, as shown. As each strip was installed it was bonded to the inside of the tank by welding along the edges with ⅝ inch stainless steel electrodes. Each successive strip was installed in this manner and any open spaces at the seams were completely filled in with stainless steel electrodes.

# THIS IS THE PROBLEM...



Effect of one application of heat on a 16 oz. soft copper gutter installation. Note the bulges on the side and bottom of the gutter, and the pinching effect at the point of stress where the copper sheet is bent.



The same gutter after 12 cycles of heating and cooling. The pinch has now developed a visible crack in the copper. The temperature range for each cycle exceeded Nature's 150° change from maximum in summer to sub-zero in winter, and it is thus estimated that each cycle in the laboratory is equivalent to one year of actual service.

## AND REVERE'S ANSWER TO IT

Above you see a close-up of a copper gutter that has failed . . . one that was forced to fail in the Revere laboratory under conditions similar to those in actual service. But here the process could be watched, photographed, analyzed . . . and the remedy scientifically developed by Revere research.

The result is that failures in sheet copper construction can now be avoided. In a new 96-page book, Revere covers the entire subject, from research and analysis of the problem to its solution through sound engineering design . . . plus 58 pages of details dealing with every type of sheet copper construction of importance to architects and contractors. All necessary data and figures are given in easy-to-use charts.

While the limited supply is available, a copy of this valuable book, "Copper and Common Sense", will be sent *free* to any architect or contractor requesting it. Write today on your letterhead to Revere.



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# Sheet Steel Distributors Meeting

**N**EW materials, OPA and the outlook for sheet metal shared the attention of the convention of the National Association of Sheet Metal Distributors held in Atlantic City, March 11 to 14.

Because of serious illness, President Bruce Haines of Souther Iron Company, St. Louis, was unable to be present, so Vice President A. M. Vorys of Vorys Brothers, Columbus, Ohio, presided.

## Secretary's Report

Secretary-Treasurer Thomas A. Fernley, Jr., in his report pointed out that the present OPA policy of forcing wholesalers to absorb some of the price increases was ruinous and that "gross margins" should be restored on all products handled by the members. He pointed out that the OPA policy had taken the profit motive out of the business and the arbitrary methods employed by OPA in reducing gross margins could only bring on trouble for the wholesalers affected. In the opinion of Mr. Fernley, the only relief that can be expected from OPA arbitrary rulings will have to come from the Congress.

## Aluminum

Mr. John Sertell, Manager, Aluminum Roofing Division, Reynolds Metals Company, Inc., described the problem of retooling to make corrugated aluminum roofing and siding and pointed out that wholesalers will also have problems in retooling for working aluminum because of its different characteristics from steel. Reynolds policy is to bridge the gap between aluminum producers and contractors through wholesalers. He predicted a 200 per cent increase in facilities to make corrugated aluminum and about the same percentage for flat sheets. He also pointed out that a new type nail was needed to properly apply corrugated aluminum. Steel nails cause some galvanic action and research was being done to produce a proper nail.

## Home Construction

Mr. G. A. Petters, Johns-Manville Sales Corporation, speaking on "The Industry's Responsibility in Providing Homes," read off statistics which indicate

the construction industry might reach 7½ billion dollars in 1946, with another 3½ to 5 billion dollars for much needed replacement and repair, with a possible potential of 15 billion annually for all types of construction by 1949-50 against a high of 13½ billion in 1929. Mr. Petters quoted authorities who stated that the need for housing units ranged from 800,000 to 1,200,000 per year, depending on whose sets of figures were used, but that the goal set up by the Wyatt Committee of 400,000 to 450,000 housing units in 1946 would have to be met. According to Petters, a great deal of the present confusion in building is directly attributable to OPA.

These resolutions were presented and passed:

1. Resolution of thanks to Bruce Haines of Souther Iron Co., St. Louis, for the work he has done for the National Association of Sheet Metal Distributors, and expressing the wishes of the Association for a speedy recovery from his illness.

2. The National Association of Sheet Metal Distributors urges all manufacturers to ask OPA for price relief, also ask for a maintenance of historic gross margins of mark-up.

3. Because the building program is being hampered by lack of production on galvanized and black sheets and nails, that price relief be given all producers of such products with historic margins granted wholesaler, based upon three best years.

## OFFICERS

President—A. M. Vorys, Vorys Bros., Inc., Columbus, Ohio.

Vice Presidents—O. F. Murphy, Lyon, Conklin & Co., Inc., Baltimore, Md.; John P. Speck, Tiffin Art Metal Co., Tiffin, Ohio.

## Executive Committee:

A. B. Lewis, The Palmer-Donavin Mfg. Co., Columbus, Ohio.

Lee Haines, Souther Iron Co., St. Louis, Mo.

Ray Farrington, W. F. Potts, Sons & Co., Phila., Pa.

Wm. A. Vernier, Superior Safety Furnace Pipe Co., Detroit, Mich.

## The Steel Situation and Expectations

By Norman W. Foy, Republic Steel Corp.

[Paper delivered at Sheet Steel Distributors' Meeting]

**I** HAVE been asked to talk to you today about the outlook for flat-rolled steel in the immediate future and to explain, if I can, why we have such a terrifically tight situation in sheets and strip.

Due to the wide variety of commodity products we and our fabricating divisions produce, we have as large a stake in the jobbing picture as any other steel producer. We consider it would be a short sighted policy to withdraw our support from the jobbing trade and channel our output through our own manufacturing operations. Our manufac-

turing divisions today are suffering for steel in exactly the same degree as all of our other customers.

"Where is all the steel going?" This is a difficult question for which there is no pat answer.

Over the past 25 years the consumption of sheets and strip has steadily risen in relation to other steel products. In 1920 there were 6.71 tons of all other steel products consumed for each ton of sheet and strip. By 1940 this ratio had declined to only 2.49 tons of all other products for each ton of sheet and strip. To put it another way,

there were 149 tons of sheet and strip produced for each thousand tons of other products in 1920. In 1940 there were 402 tons of sheet and strip for each thousand tons of other products. It must be kept in mind that from 1926 to 1940 there was very little overall growth in the total production capacity for steel, and this rapid expansion in flat-rolled output was therefore at the expense of other steel products.

### **Continuous Mills Increase Production**

The increase in flat-rolled production was made possible by the advent of the continuous mills, the first of which was built about 1926. When our own 98" mill in Cleveland was ready for production in 1937 it was freely predicted that we and other producers would never be able to find enough tonnage to operate mills of such capacity profitably. Today we could use another one just like it if we had the steel ingot capacity to supply it.

It is well to point out here that while the continuous mills provided a steadily increasing capacity for flat-rolled steel during the 15 years preceding the war, their very magnitude prevents any rapid expansion in rolling facilities at the present time. Such a mill with its supplementary equipment represents an investment of 20 to 35 million dollars, depending on size, and requires a minimum of two years to build.

As the number of continuous mills increased, the old type hand mills began to fade from the picture at an accelerating rate. As recently as 1935 there were 594 hand mills in operation. Today there are 199 hand mills still listed as active, but many of them have not operated for some time and may never resume, and quite a few others, as you know, have suspended operations quite recently due to inability to secure sheet bar, which under OPA ceilings shows the steel producer a substantial loss.

### **Hand Mill Production**

The loss of this hand mill production is particularly painful at the present time. Many of our customers point out that they never used steel in the grades and finishes produced by the hand mills and therefore feel they should not be affected by their discontinuance. They overlook the fact that a large tonnage of the sheets produced for galvanizing by the hand mills must now come from the continuous mills in the form of cold-rolled sheets. This directly affects the tonnage available for cold-rolled sheet customers. The situation is further complicated by the withdrawal of some steel companies from production of galvanized sheets and other flat-rolled products.

When the war came along, total flat-rolled production had built up from 4% million tons in 1920 to 14 million tons in 1940, largely through the advent of the continuous mills as mentioned before. In the early war years, however, there was relatively little need for light flat-rolled steel, which dropped to 15% of normal, while the demand for ship plates was insatiable. Many of the continuous mills, including our own, were converted for the production of plate and turned in an amazing performance. Plate production on the continuous mills reached 500,000 tons per month and literally saved our ship-building program.

### **Ship Plate Production**

But far fewer men were needed to produce ship plates. During this period it required 950 men per day on our 98" mill for the plate operation, while the lighter and more varied peace-time production requires 1,650 men per day. We lost a large part of our skilled organization, as did other mills under similar circumstances. The difficulty of rebuilding such an organization and the extended training period required is one of the reasons that flat-rolled production figures have been somewhat disappointing since the end of the war.

In addition to this all of us have been be-devilled by deliberate slow-downs and other restrictions of output by labor. It is too early to tell definitely whether or not the strike and subsequent wage increase will correct this condition but we have some grounds for optimism. Offsetting

this increased production, if we get it, is the huge tonnage lost during the strike. While the strike lasted only four weeks, we have lost from six to eight weeks output due to the complications involved in starting operations after a complete shut-down. 1946 will therefore be a ten-month year at best insofar as sheet production is concerned.

People are always reminding us, when we point out our inability to accept more tonnage, that steel capacity was expanded by 15 million tons during the war and they can't understand the present situation. They fail to consider that there was no expansion in light flat-rolled capacity in the war years and the total of such capacity is and will for several years to come be slightly less than pre-war.

At the same time the flat-rolled industry, with somewhat less capacity, with deliberate restrictions on output, with crews still only partially trained, is called upon to meet a demand unprecedented in our history. It is unnecessary for me to quote any figures on the huge backlog of demand for consumers' durable goods; they have been widely published. And almost every one, automobiles, stoves, refrigerators, washing machines, appliances and consumer products of every description, require flat-rolled steel as their principal component.

### **Backlog of Demand**

Nearly every manufacturing customer we have has either expanded his plant to produce two or three times his pre-war output or is in the process of doing so. Some of these expanded production lines requiring flat-rolled steel primarily have no hope of full operation for some time to come.

Equally unfortunate are the newcomers in many fields of production who had no history as steel users on the books of any mill before the war. Many of them find it impossible to secure enough steel even to begin operations in a small way, since most major steel producers are following the policy of rationing their output among their established customers.

We do not think manufacturers have been unrealistic in their expansion plans. Our investigations indicate the huge demand for almost everything is authentic and the money is available to satisfy it. It does appear, however, that for the first time in American history our productive capacity will fail to measure up to demand for some time to come. When the backed-up demand is satisfied there will be a tremendous shaking out of the less efficient producers and competition will probably be the keenest we have ever seen.

Many industries will repeat the pattern of the automotive industry. When asked how many makes of automobiles have been built and offered for sale since that industry began, the average person guesses about 200. Actually the number is 1,652. Today there are less than 20. The same thing is bound to happen in many lines of business.

### **Rationing Among Customers**

I mentioned a few minutes ago that we were rationing steel among our regular customers. This is a touchy subject and I want to explain how we have gone about it. Since we have no more flat-rolled capacity than we had pre-war, the logical procedure of selecting certain normal pre-war years and arriving at an average monthly quota was established. In the light of war-time expansion and post-war demand, this quota seems very small to many of our good friends, but the sum of all the quotas is our total capacity to produce. We have no surplus we can dip into to satisfy individual needs. We are straining every nerve to produce and ship the last possible pound. We have the additional limitation of steel ingot capacity. The demand for every type of steel product, bars, pipe, wire, is just as pressing as the demand for sheets. Rarely in normal times do all branches of the steel business operate at capacity and our blast furnace, open-hearth and other melting capacity is more than adequate. Today the real limitation on our operations is the amount of steel we can melt. That is why, even if we were to build an addi-

(Continued on page 132)



# The Michigan Convention

**M**ICHIGAN'S thirty-fifth annual convention, held in Grand Rapids, March 18, 19 and 20—the first state convention since 1944—certainly emphasized that interest in a state association has not lagged in the past two years. This was evidenced by the registration of more than two hundred members, guests and visitors. A number of new memberships in the state association were obtained at the convention.

Probably the most interesting discussion of the convention occurred in the session of the heating division where the possibility of a state-wide contractor licensing ordinance was discussed, and methods were discussed whereby the newly accepted emblem of the heating division could be made a most useful instrument to raise the standards of the design and installation throughout the state. Michigan has been debating a state-wide licensing law for warm air heating contractors for several years. About two years ago the proposition reached the legislature, but for one reason or another nothing happened. Briefly stated, the belief of the association is that a state-wide licensing ordinance would be advantageous if the ordinance was so drawn up that all communities over a certain population (say approximately 250,000 population) and any other counties who might volunteer to operate under this state-wide licensing law could, either automatically or voluntarily, obtain the benefit of a licensing act. The belief of the association is that this licensing ordinance should automatically carry with it a code of design and installation practice. Counties or municipalities would set up the necessary inspection bureaus and contractors doing work would take out a permit before work started.

It would be the task of the permit bureau to see that systems were properly engineered and through inspection see that the systems were actually installed in accordance with approved plans. Such a state-wide licensing act would supersede existing license acts in various communities and this would eliminate the current practice of contractors having to take out licenses and pay permit fees in a number of adjoining municipalities. The convention resolved to work for a state-wide licensing act based upon these general principles.

## Heating Division Adopts Emblem

The Heating Division of the state association has adopted an emblem. Contractor members of the association doing heating work will be given the emblem to show on letterheads, on truck bodies, in windows, and decalcomanias, etc., providing the contractor member signs an agreement to abide by certain regulations accompanying the use of the emblem. In brief, this annual application and contract for the use of the emblem carries with it the right of the association to examine any complaints of improper design or installation, and if the complaint is justified to withdraw the use of the emblem from the member. The member is entitled to a hearing before an appointed board. If found guilty of violation of the contract, the firm may be suspended from membership. A fine for improper use of the emblem or violation of the contract is incorporated in the agreement. The contractor signing the agreement must install all gravity or winter air conditioning systems in accordance with

applicable national codes as developed by the National Warm Air Heating and Air Conditioning Association. The cost of entering the contract and using the emblem is set at \$25 per year.

## Construction Industry Problems

Henry A. Reniger, president of the Michigan Chapter of Associated General Contractors, commented very pertinently on some of the problems facing the construction industry. He said contractors are finding it more difficult to operate under the regulations of today than they found under L-41. His opinion is that the housing program announced is impossible because there are not enough mechanics or materials to build 2,700,000 homes. He emphasized the point that

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## HEATING DIVISION

President ..... Dee Cramer, Flint  
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this perspective program means for the city of Lansing, Mich., about 700 new homes, whereas in the 16 years—1930 to 1945—Lansing never built more than 160 homes a year. He also pointed out that the program makes little provision for necessary schools, utilities and other community services. Mr. Reniger said he believed the present time is quite appropriate for the building industry to write its own ticket; industry wants no labor slow-down and they do want more efficient labor; the industry needs more apprentices and employers must encourage apprenticeship training. There must be close cooperation between employers and government if we are to get efficient construction; government must become completely familiar with the problems of the building industry; and, finally, the public must be educated to the increased cost of site construction.

A survey made in Michigan indicates that the state finds a tremendous backlog for hospitals, colleges, schools of all sizes, and municipal facilities. Some \$39,000,000 have been earmarked for such construction in Michigan, and at least an additional \$15,000,000 of construction will be placed on a negotiated contract basis. One craft which has made good progress in apprenticeship training in Michigan is the bricklayers, who placed their apprentices on an accelerated plan of 40 hours in school and 40 hours on the job, after which the apprentice became available for bricklaying. All crafts in the building industry must





## *Candidly — Michigan*



push the apprenticeship program if the industry is to find adequate labor in the next three or four years, he said. Perhaps the only way whereby the necessary construction can be accomplished, said the speaker, is for definite plans to be made to spread construction over ten years rather than trying to concentrate construction into two or three years.

### **National Contractor Plan and Program**

R. E. Walsh, director, Sheet Metal Contractors' National Association, presented an outline of the association's plan and program. Mr. Walsh pointed out that the industry never had needed a strong national association quite so much as such an organization is needed today. The national program is based upon close integration of the local, state and national organizations. The program of the national association, as explained by Mr. Walsh, embraces such activities as a national, a regional and a local labor relations program; the correlation and dissemination of data and standards which the industry finds advisable; the proper procedure through committees to deal with government regulations, both federal and state; through committees to cooperate with other craft in the building industry so that the building program may be completed; and finally the national association proposes through committees and agreements to protect our industry from inroads by other craft.

Mr. Walsh explained that during the past year committees have been working on a standardized book-keeping, cost accounting and estimating system. Such systems are difficult to prepare and much work re-

mains to be done, but a groundwork has been laid and it is hoped that in 1946 a standard system will be available for members. Another committee is working on uniform standards of construction in order that general contractors, builders, consumers and architects may understand just what constitutes good and improper practice in the sheet metal and warm air heating trade. The national association, said Mr. Walsh, proposes to set up committees locally and nationally to cooperate with the federal and state or local government in the preparation and adoption of building codes, heating codes, licensing ordinances and all the other necessary practices.

The only thing which will restrict the national association activities is a lack of funds and a lack of membership. A membership campaign has been under way all during 1945 and 1946 and it is hoped that by the end of 1946 membership in the national will far exceed 1,000 active members.

### **Construction Outlook**

Thomas F. Holden, president, F. W. Dodge Corporation, described the construction picture as a program of hopes and expectations which may possibly be completed but which may also bog down in detail. The so-called "Wyatt" program, he said, changes the whole construction picture and the whole construction outlook which was anticipated in 1945. Last year it was contemplated that there would be a general revival of all kinds of construction—home, municipal facilities, hospitals, roads and bridges, dams and highways, and much industrial construction. Now, government demands that almost three million houses be constructed for the veterans and people who need housing, and if this program is completed it will mean that other types of construction must suffer from a lack of both manpower and materials. Whether or not homes can be constructed under the original Wyatt program ceiling of \$6,000 remains doubtful and recent moves on the part of government and the housing agencies indicate that this ceiling must be increased to approximately \$8,600 if housing is to be secured. The subsidy program to reimburse manufacturers of building materials for selling prices which are too low is at present under fire in Washington and the result is doubtful. Mr. Holden pointed out that the Wyatt program contemplates approximately one and one-half millions of houses in 1946 and 1947, whereas in the peak house construction year something less than one million houses were constructed. And this was during a period when labor was plentiful and materials were also plentiful. As further doubtful limitations, Mr. Holden said that the Wyatt program demands one and one-half million apprentices by the end of 1947 and at the moment it looks very doubtful if such a number of apprentices can be enrolled and trained; FHA also claims they will maintain house construction standards, but to all indications there is not sufficient staff in FHA to maintain such standards; and finally plant capacity is even more serious than production.

### **Apprenticeship Training**

Tom Ross, in charge of apprenticeship training for the State of Michigan, smacked the industry right between the eyes when he said that no craft in Michigan has done a poorer job of apprenticeship planning and training than has the sheet metal industry. Mr. Ross said that to date no local association in Michigan has developed apprenticeship training or standards and an apprenticeship training plan. He said every sheet

metal shop should have one or more apprentices under training and the wealth of good material which is available is astonishing—nonetheless, the sheet metal industry in Michigan is not training apprentices. He pointed out that in the city of Detroit a real effort was made to obtain apprentices for the sheet metal industry and in less than six weeks' time 107 excellent apprentices were placed in training.

According to Mr. Ross, union labor is just as anxious for apprentices to be placed in training as is the federal government, and he pointed up this remark by saying that one union in the state of Michigan is seriously considering calling a general strike in order to compel employers to take on apprentices. If the industry and all other industries do not employ apprentices so that there will be adequate manpower, it is quite likely, said Mr. Ross, that before very long many industries will find their work being taken by substitute material crafts.

### **Copper Gutter Construction**

Through the courtesy of Revere Copper and Brass, a moving picture was run showing a test made by Revere Copper and Brass to determine why copper gutters failed. A report on this series of tests was published in AMERICAN ARTISAN in the February, 1945, issue. The test disclosed that the chief cause of gutter failure lies in the use of too light a copper. Sixteen-ounce copper is too light for large gutter construction or lining. One of two changes must be made—either the copper must be of 20 gauge or heavier, or there must be stiffeners provided longitudinally in the gutter to provide columnar strength in the gutter. The picture shows how these longitudinal stiffeners are continuously soldered along the bottom turn on the front or back of the gutter. As expansion occurs under increasing temperatures, the stiffeners serve to transmit the movement from one end of the gutter to the other, and instead of the gutter buckling, the whole gutter section moves as a unit. Whereas common 16-ounce gutter construction failed under one application of artificial heat and cooling, gutters with stiffeners withstood as many as 500 alternate increases in temperature and sudden cooling. The movie discloses that old-time gutters using 20-ounce copper and heavier do possess the necessary columnar strength and that is the reason why old gutters are still giving good service, whereas recent construction shows cracks and buckles.

### **NWAH and ACA Dealer Program**

Frank E. Mehrings, president, National Warm Air Heating and Air Conditioning Association, announced the 1946 program of the association and its dealer division. Mr. Mehrings announced that G. A. Voorhees has been employed by the association to conduct, if possible, some thirty two-day engineering schools in 1946. These schools will be conducted throughout the United States, but for the first year will be concentrated pretty largely in the middle west. Mr. Voorhees will conduct the schools up until approximately the end of September, and beginning then, or in the meantime, if possible, he will prepare a series of engineering bulletins which will serve during the winter season or will serve for contractors who cannot attend the planned schools. Mr. Voorhees will be remembered as the author of the "Furblo Bulletins," one of the best engineering bulletin series ever presented to the industry.

Mr. Mehrings also announced that the research resi-

(Continued on page 136)



# ASSOCIATION ACTIVITIES



## New York City

The Roofing & Sheet Metal Crafts Institute, Inc., 307 West 14th Street, New York 14, held an open installation of officers on February 13 at the regular meeting headquarters in the presence of approximately sixty people. Members brought their wives and with music, dancing and buffet, the affair proved interesting and entertaining (homemade by such seasonal singers as Marty Hale, Gene Packer and Larry Corvi).

Lawrence C. Corvi, out-going president, opened the meeting, mentioned the increased membership and the outlook for many more members. Mr. Corvi counseled members to make a friend of their competitor—not an enemy, for there will be plenty to go around. He looks for a prosperous future. Mr. Corvi then installed the following officers:

President—Irrving Popik.  
Vice-Presidents—Martin J. Hale, Charles Muller.  
Treasurer—Irrving Koppelson.  
Corresponding Secretary—Eugene L. Packer.  
Recording Secretary—Albert L. Lauber.  
Chairman of the Board—Lawrence C. Corvi (installed by Richard H. Freyberg).  
Directors—Thomas J. Wynne, Louis Moskowitz.

The Institute welcomes Jules Markham of the Renew Roofing & Siding Co., 111 Westchester Square, Bronx, as a new member.

The Institute was founded and is still conducted on the basis of its motto—Craftsmanship, Fairness and Reliability. Its members have pledged themselves to operate in accordance with the Code of Ethics. The advantages, as set forth by Chairman Corvi, are that the average age of a member-firm of the Institute is about twenty-five years, all with outstanding reputations. Mixing with them at meetings, younger firms could learn and benefit by their experiences. Institute members enjoy the benefits of group insurance, and the cordial relations with customers through legitimate guarantees. Dues are low, yet membership affords the association with and co-operation of a bunch of regular fellows. Contractors are invited to come and get acquainted. An application-for-membership blank is in the February issue of the Institute Ticker.

Members are advised to keep a printed copy of the Code of Ethics framed on the wall of their office.

## Buffalo

At the March 5th dinner meeting of the Buffalo Sheet Metal, Warm Air Heating & Air Conditioning Association, 42 members registered for a short course covering the new forced warm air code and manual to be conducted by this association in conjunction with its April, May and June meetings.

A winter work program, outlined during the February meeting, was started; the first subject being evaporative room coolers, a method of summer cooling that can be installed by warm air contractors during slack winter months. A number of descriptive charts were displayed and explained.

Joseph A. Collins of Frontier Oil Refining Corporation spoke on "Oil Heating Trends," outlining the national oil reserves available for years to come; also, referred to more compact and efficient domestic oil units soon to be marketed.

Bottlenecks involving delivery of gas, oil and stoker units were discussed, warning contractors to be on the look-out for substitute materials, combinations of existing equipment to form units and advised against accepting more contracts than they can complete. Attendance 60.

## Cook County, Illinois

Sheet Metal Contractors' Association of Cook County, elected the following officers at the meeting held December 19, 1945, at the Builders Club.

Lee Burghoffer—President.  
Gerald P. Myers—Vice President.  
Edgar W. Nelson—Secretary.  
Albert J. Wagner, Jr.—Treasurer.

## Carolinas

The March, 1946, issue of "The Carolinas Roofer" published by The Carolinas Roofing and Sheet Metal Contractors Association—J. A. Piper Editor—carries a report of the United Roofing Contractors Association in St. Louis, January 11, 12 and 13, and highlights of the same convention as seen by L. K. Flynt.

Members listed are the Builders Roofing Co. of Spartansburg, of which Arch Walker is proprietor, and the Federal Roofing Co., Sumter, S. C., a new member.

The parapet and its flashing is described and illustrated.

The Carolinas Roofing and Sheet Metal Contractors Association held its quarterly meeting at the Country Club, Sanford, N. C., on the evening of March 14.

After a dinner served by the club steward a business session was held. Pres. L. K. Flynt, Charlotte, N. C., presided, and the following standing Committee Chairmen were heard: Prentiss Baker, Raleigh, N. C., Veteran Training; Vardrey Ramseur, Greenville, S. C., Legislation; J. A. Piper, Greenville, S. C., Magazine; Hilton Bowles, Hickory, N. C., Architects; J. Victor King, Sanford, N. C., Public Relations; Horace King, Wilmington, N. C., Financial Report.

Also attending the meeting were Gordon Waters, Rocky Mount, N. C.; V. E. Bell, Durham, N. C.; Ralph Barker, Durham, N. C.; Josh Ware, Gaffney, S. C.; George Leiter, Charlotte, N. C., president Associate Members division.

Matters pertaining to the industry were discussed, with special attention given the Pepper and Gwynne bills now before Congress.

Tentative arrangements for the annual June convention were made, final selection to be between Myrtle Beach, S. C.; Wrightsville Beach and Charlotte, N. C.

## Coming Conventions and Meetings

1946

Apr. 8-9—Illinois Sheet Metal Contractors' Assn., Jefferson Hotel, Peoria. W. Rex Shaw, Secy., 695 E. State St., Jacksonville.

Apr. 15—Syracuse University Short Course. Syracuse University, Syracuse, N. Y. National Warm Air Heating and Air Conditioning Assn., 145 Public Square, Cleveland 14, Ohio. George Boeddener, Man. Dir.

May 2-4—Sheet Metal Contractors' National Association, Inc. Convention. Hotel Statler, St. Louis. Clarence J. Meyer, Natl. Secy., Buffalo 4.

June 3-4—Stoker Manufacturers Association. Annual, Broadmoor Hotel, Colorado Springs, Colo. Marc G. Bluth, Secy., 307 N. Michigan Ave., Chicago 1.

July 12-21—Construction Industries Exposition and Home Show of Southern California. Pan Pacific Auditorium, Los Angeles. Tabery Corporation, Managers, 3443 S. Hill St., Los Angeles 7.



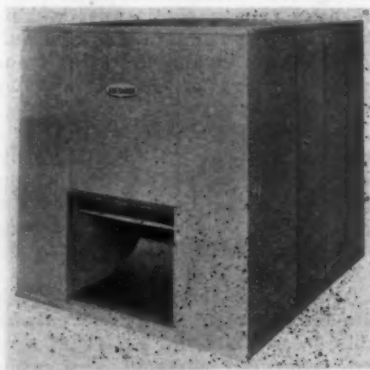
# Equipment Developments

For your convenience a number has been assigned to each item. Circle the items in which you are interested on the coupon on page 128 and mail to us.

△ Indicates manufacturer not listed in 1946 Directory.  
● Indicates product not listed in 1946 Directory.

## 12—Air-Champ Cooler

Alton Manufacturing Co., 1111 Camp Street, Dallas 2, Texas, is producing the Air-Champ evaporative cooling unit in four standard sizes for installation in all types of commercial establishments. Capacities are 4,000,

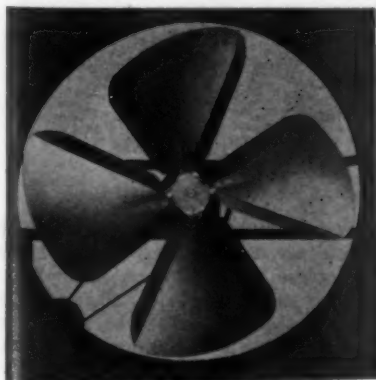


5,500, 7,000 and 10,000 cfm. The air washer section is offered separately.

The unit includes the "Turbospray" method of recirculating and distributing the water in a single assembly. There are two sets or banks of evaporative mats, or pads. The inside bank of pads receives no direct water spray, but is a "drying mat."

## 13—Silent Breeze

Holcomb & Hoke Mfg. Company 1545 Van Buren St., Indianapolis, announces Silent Breeze for both home and industrial use. An outstanding feature is the long balanced axle shaft

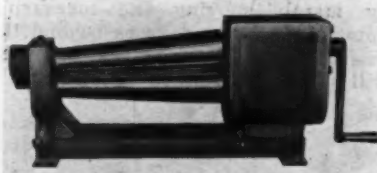


designed for noiseless operation. Slow r.p.m. assures elimination of "hum."

Capacities range from 7,000 to 21,000 cfm. A folder is available.

## 14—Pailside Former

Wysong and Miles Company, Greensboro, North Carolina, offers the Pailside roll forming machine, No. 818. Specifications include conical rolls 3 15/16 inch in diameter at the



large end and 2 1/2 inches in diameter at the small end, and 18 inches in length, leaving a working length of 18 inches. All rolls are drive, back roll may be used floating if desired. Capacity 18 gage; gear ratio, 3 to 1; hand crank is filled with a full floating machine shaped polished steel; crated weight 400 pounds.

The conical shape of the rolls produces in one rolling operation a pailside properly formed without the necessity of handling or changing the position of the forms in the roll.

## 15—Weld-Spatter

The Electric Welding Division of the General Electric Company, Schenectady, N. Y., announces two new weld-spatter-resistant compounds, No. 9951 and No. 9952. Both are specially formulated for use in



the welding field wherever weld spatter is undesirable.

Furnished in powder form, ready to be mixed with water, the compounds are identical in performance. The only difference is that the No. 9951 is non-adherent and can be readily removed with an air hose or a dry cloth, while the No. 9952 is semi-adherent but can be quickly and easily removed with a damp cloth or stream of water.

## 16—Wall-Flame Burners

Timken Silent Automatic Division, Timken-Detroit Axle Co., 100 Clark Avenue, Detroit 32, advises production lines are humming on the 1946



wall-flame oil burners. The new unit incorporates 19 engineering and design improvements, but retains the wall-flame features.

Installations are tailor-made for individual heating plants; round, square or rectangular fire-boxes.

## 17—Auto-Heat Unit

Automatic Products Company, 2450 N. 32nd Street, Milwaukee 10, offers A-P thermostatic temperature control sets. An A-P electric conversion top, with its accompanying thermostat and transformer are added to an A-P



thermostatic manual control (with which most vaporizing oil burner appliances are equipped).

Installation requires only that the electric auto-heat conversion top be attached to the top of the case of the manual oil control by a few screws; then the wires are connected from the unit to the transformer, and the thermostat mounted on the wall, with connections to the transformer and conversion top.

This package unit consists of conversion top, thermostat, transformer, and all necessary hardware.

# Equipment Developments.

For your convenience in obtaining information regarding these items, use the coupon on page 128.

## • 18—Strike Easy

General Electric Company, Electric Welding Division, Schenectady, N. Y., announces a new arc-welding compound designed to aid in instantaneously creating and maintaining a metallic welding arc where low currents



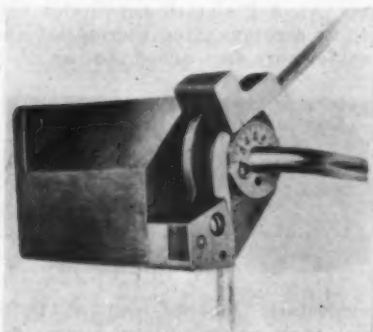
and small-diameter electrodes are employed. Known as Strike-easy, this new compound is easily applied and can be used on any kind of metal with any type of electrode.

The compound, which is in paste form, is available from distributors in one-pound glass jars, completely ready for use. No mixing or other preparation is required.

## • 19—Hand-Bending Tool

Glenn L. Martin Company, Baltimore 3, Maryland, has developed a new hand-bending tool, which permits all kinds of small tubing to be curved to any desired angle.

Designed by a Martin employee, Carroll E. Adreon, the new tool consists of a steel base which may be



used in a vise or clamped onto a bench; a revolving radius rod equipped with a handle for turning; a stop block grooved to hold the tubing; and a movable radius block which guides the tubing around a bend roll centered on top the base. This roll, cylindrical in shape and also grooved has a top plate scribed in 360 degrees. A measuring point is marked on the movable radius block. The radius and holding blocks and the roll are so grooved as to prevent

crushing or change in section of the tubing.

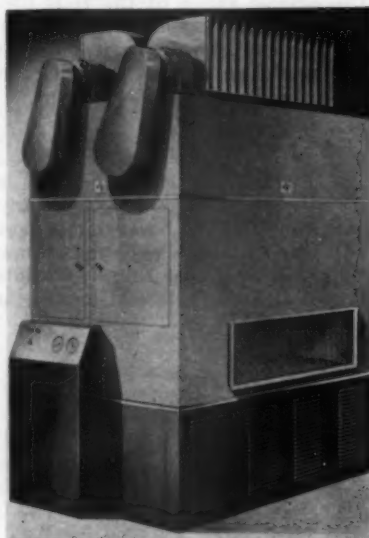
In operation the tubing is inserted in the groove of the stop block and the movable block which has been returned to the zero degree point. The movable block is then pulled around the bend roll, being connected to the revolving radius rod, until the measuring point is directly opposite the mark of the angle desired in the bend roll.

Allowances can be made for tubing having a "spring back" characteristic by merely moving the measuring point to as many degrees beyond the desired angle marking as the tube will spring back when released.

## • 20—Airtopia

Drayer-Hanson, Inc., Los Angeles 54, announces a new model of Airtopia, a compact unit that gives year 'round temperature and humidity control together with air purification. Formerly known as Reversatemp, the new model is suitable for homes, offices and small stores.

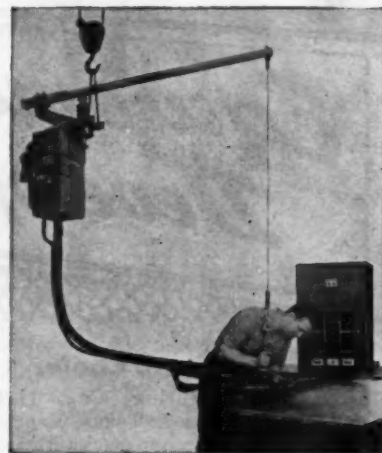
Airtopia, designed by Gilbert E. Clancy, is a modern application of the



known principles of thermodynamics, combining them in proper proportion and balance. The unit keeps room temperatures constant despite outside weather conditions, alternating between heating and cooling as required.

The smallest Airtopia fits into a 3½x5x7 space. It is suitable for a 7-room house, or small office or store building.

Airtopia needs no chimneys, and leaves no soot, smoke, ashes, fire hazard or idle equipment. Electrical energy supplies the power to operate the compressor and motors.



## 21—Welding Units

Sciaky Bros., 4915 West 67th Street, Chicago 38, announces a new line of overhead type portable spot welding units. Both pneumatic and hydraulic systems are available with transformer ratings of 50, 75 and 100 KVA.

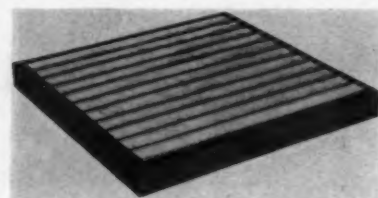
A variety of standard gun styles in both alligator and "C" types are designed to fit nearly every application. Special emphasis is made on lightness in both gun and cable design. Spring type or pneumatic balancers are provided for easy positioning of the gun.

Transformers may be with or without tap switch. Electronic control units are available for control of welding sequence, current interruption and electronic control of welding heat. Unit may be permanently suspended for production lines, or hung from any jib hoist, monorail, etc., for tack or structural welding.

Hydraulic system makes efficient use of water with special fast-acting booster and electro-valve. In case of leakage, system is automatically re-filled from same line supplying cooling water to transformer, cables and gun.

## • 22—Badger Filter

Badger Corporation, 629 E. Brown St., Milwaukee, announces a new dry, replaceable type air filter for domestic

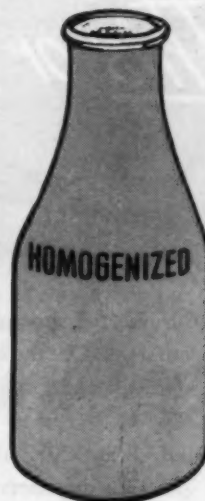


and commercial use in forced warm air and air conditioning units. Made of odorless, fire-resistant glass fibre, the new filter provides 25 per cent greater filtering surface because of a rib design. Special flange construction assures a perfect air seal in the frame. Fixed media will not slide, pack, swell or settle. Rigidity and sturdiness of strong cardboard frame, firmly cemented to exclusive rib structures assures long life.



*Some Furnaces  
Heat Like this*

*With the "Cream" of the heat  
at the top of the room—thin,  
"skimmed milk" heat below*



*Superfex  
Homogen-Air Furnaces  
Heat like this*

## **EVENLY DISTRIBUTED HEAT FROM CEILING TO FLOOR** without expensive extra controls

Here's an exciting new kind of heating system that does away with chilly ankles. Superfex distributes the "cream" of the heat in constantly-moving, gentle warmth at all room levels. No wasteful warm-air pockets at the top of the room—no drafty floors—floor and ceiling temperatures vary as little as four degrees!

You can now get all this without expensive extra controls because three-stage heating (pilot, low and high fire) and the Homogen-Air principle are built in to the Superfex Heating System. Superfex auto-

matically adjusts itself to changes in the weather; the synchronized blower delivers a constant flow of healthful warmth.

Write today for the booklet, "Super-Comfort with Superfex". Before you decide upon a new furnace learn about the last word in heating efficiency. New in principle, wonderfully modern in design, Superfex has been thoroughly tested under severe conditions in *thousands* of homes. It is one "post-war" furnace that has already set new records for performance and economy in actual use. It is available in various sizes.

**Superfex FURNACES**  
GAS OR OIL

PERFECTION STOVE COMPANY • 7843-B Platt Avenue, Cleveland 4, Ohio





Which would you want  
for your customers?

*This or This?*

Here are two roof-drainage jobs. On one the sheet metal contractor used ordinary galvanized steel. On the other house the contractor used ARMCO Galvanized PAINTGRIP (the base metal is Ingot Iron).

It is plain to see what happened. Practically all the paint has peeled off the ordinary galvanized gutters. The metal was acid-treated before painting. This not only destroyed part of the zinc coating, but the raw zinc beneath the paint dried it out rapidly and caused early paint failure. You don't want this to happen to your work.

#### Why it pays to use Paintgrip:

Now take another look at the house with the ARMCO PAINTGRIP job. The paint is as smooth and protective as the day it was put on. This is the kind of work you will want to give your customers—to hold their good will; to get more repeat business; to advertise the fact that you use quality materials; and to make more money.

Remember, it *actually costs less* to use ARMCO Galvanized PAINTGRIP than to acid-treat ordinary galvanized before

painting. Yet it *takes paint without weathering or pre-treatment and holds it much longer*. That's a good point to make with architects, general contractors and homeowners and they'll appreciate your telling them.

Use ARMCO PAINTGRIP now—whenever you can get it for repair work—and remember it for your post-war work. It'll pay off in more and better jobs. The American Rolling Mill Company, 951 Curtis Street, Middletown, O.

The American Rolling Mill



Company

# CHRYSLER AIRTEMP



## Dealer's Choice

With Chrysler Airtemp, the dealer names his own game—and rakes in profits 12 months of the year. The triple line of *automatic central heating, air conditioning and refrigeration* takes the peaks and valleys out of sales curves—sets up the finest opportunity for year-around business that has ever been offered in this industry.

"Packaged" and mass produced for the big volume market, Chrysler Airtemp products are engineered right, made right and *priced right*. Engineered for heavy duty and designed for compact beauty, each "packaged" product is easy to install and is backed by a national reputation for low upkeep and operating costs. Behind each is the world-famed engineering skill and mass production experience of Chrysler Corporation.

Don't overlook the profit possibilities of the three-ply Chrysler Airtemp line—automatic central home heating, "Packaged" Air Conditioners, and commercial and industrial refrigeration. For details, write Airtemp Division of Chrysler Corporation, Dayton 1, Ohio. In Canada—Therm-O-Rite Products, Ltd., Toronto, Ontario.



### 1, any 2, or all 3

There's a dealer agreement for any one Chrysler Airtemp line, any combination of two—or for all three! Here's real opportunity for profitable operation all year long.

"REMEMBER THURSDAY NIGHT! The music of Andre Kostelanetz and the musical world's most popular stars—Thursday, CBS, 9:00 P.M., E.S.T."



A I R C O N D I T I O N I N G  
HEATING • COOLING • REFRIGERATION



# WANTED

## 2,500,000

### HEATING UNITS

**... and Bryant answers America's heating needs with everything from small space heaters to complete winter air conditioning**

The time is here for dealers to look squarely at today's heating market. Surveys prove that the trend is definitely to gas heating and show a market which adds up to two and a half million heating units annually!

This is America's huge heating market! This is a market ready to buy . . . a market you can sell if you are selling Bryant. When you sell Bryant, you sell the heating most people intend to buy.

Bryant has pre-conditioned this market for you with sales stories in leading national and trade magazines. This great advertising campaign is convincing *your* customers and prospects that Bryant will offer them the best in gas heating. And this advertising, plus the complete Bryant Heater line, is the basis for a sound sales policy for you.

Talk to your Bryant distributor at the earliest opportunity. Let him show you the factual presentation, "Post-war Picture of Home Heating." You'll be amazed at the new beauty, new features, new opportunity in the Bryant complete line of gas heating equipment. You'll realize that there is everything for full customer satisfaction . . . everything from small space heaters to complete winter air conditioning. In addition to the Bryant quality line, there are new steel gravity warm air furnaces, winter air conditioners and floor furnaces to meet the needs of moderate cost home builders. And there is a new Bryant line of modern automatic storage water heaters.

Get in on the ground floor now. You'll be interested in the advertising and merchandising program planned for you and the unusual profit opportunities that await you. Check with your Bryant distributor. Find out about the Bryant Heater complete line of gas heating equipment and sell the heating your customers want. Sell Bryant!

**BRYANT HEATER COMPANY, 17825 St. Clair Avenue, Cleveland 10, Ohio**

*One of the Dresser Industries*



Ideal for small homes heating, this steel gravity warm air furnace fits the modest building budget.

# bryant

## GAS HEATING



LET THE PUP BE FURNACE MAN

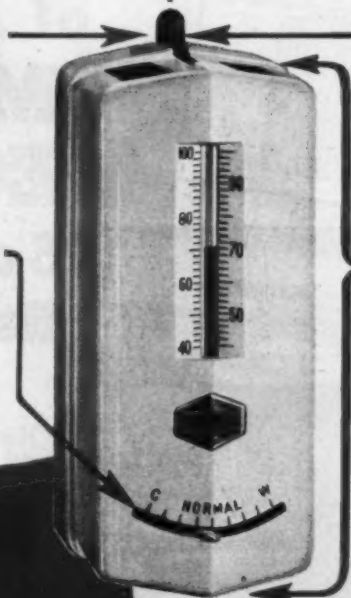
**The most complete line of gas heating equipment in the nation!**



# How the regulator with the little red light BRINGS COMPLETE SATISFACTION WITH SOLID FUEL

Red light acts as heat anticipating device, since heat from light added to heat from air passing around bi-metallic element, causes the thermostat to check the draft just before arriving at temperature setting ... thus preventing overrun in temperature.

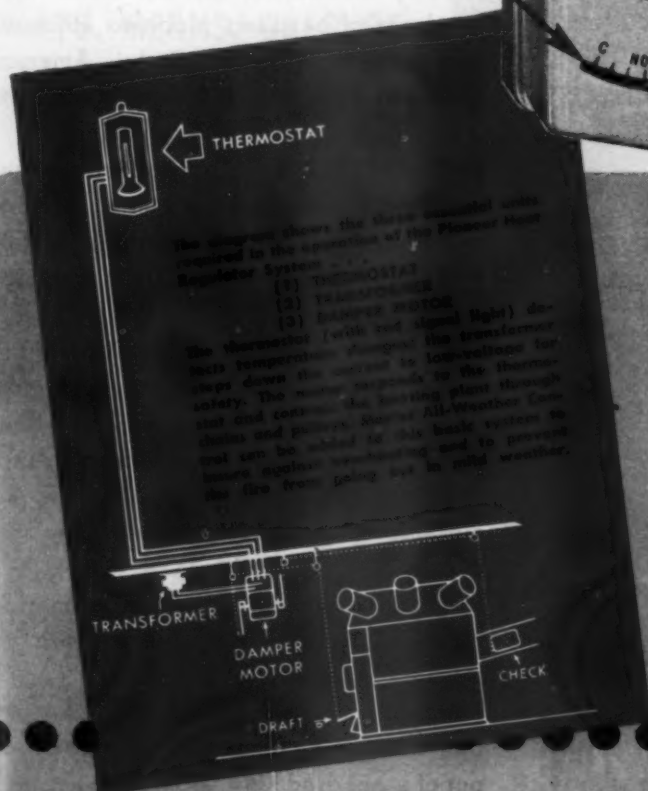
Range of thermostat is about 52° to 88° F. and the factory setting is 70° at "normal." Each division of scale represents approximately 5°. It will respond to temperature changes of a fraction of a degree.



Every Pioneer thermostat is equipped with a red signal light. Glows red when calling for heat and, if on for a long period, it reminds that furnace needs attention. When light is off it tells that room temperature is up to thermostat setting.

Openings in the top and bottom permit free flow of air affecting the bi-metal directly so that the thermostat responds only to true air temperature.

Case is made of attractive Ivory Plaskon, a durable plastic with a lasting finish. It also is a poor conductor of heat, thus insuring against picking up or interference by wall temperatures.



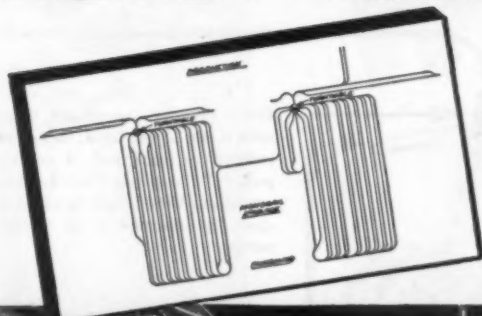
Some of the features mentioned here show why the system with the red signal light thermostat will give your customers greater satisfaction, providing the comfort, convenience and economy of automatic heat control at a cost every home can afford. Write for complete details.

FOR WARM AIR • HOT WATER • STEAM



**PIONEER CONTROLS**  
A quality product manufactured by  
**The MASTER ELECTRIC Co.**  
Aircraft and Electrical Controls Division  
DAYTON 1, OHIO

# ***FLEXIBILITY***



## **of AMERICAN MONORAIL EQUIPMENT Solves Difficult Handling Problems**

Here is another of the hundreds upon hundreds of handling problems efficiently and economically solved by American MonoRail Overhead Handling Equipment.

**THE PROBLEM:** To eliminate manual handling of reels from production machines to storage, from storage to finishing, from finishing to storage or shipping as required.

**THE ANSWER:** The **FLEXIBILITY** of American MonoRail switching arrangements permits reels to move on carriers with no rehandling between processes. Ample live storage is allowed, permitting free movement between all processes.

What is your handling problem? American MonoRail Engineers come up with the answer to efficient and economical handling ninety-nine times out of a hundred. We invite your inquiries.



## **THE AMERICAN MONORAIL COMPANY**

13133 ATHENS AVE.

CLEVELAND 7, OHIO

**FREE!**

UP-TO-THE-MINUTE  
**FACTS**  
WAYS, MEANS, USES OF  
**BEARING  
ALLOYS**

A detailed discussion of white metal bearing alloys—valuable to anyone concerned with production, maintenance, and repairs.

*Federated*

METALS DIVISION

AMERICAN SMELTING  
AND REFINING COMPANY

**BEARING ALLOYS**  
TECHNICAL MANUAL

**FMD**

**MAIL THIS COUPON NOW!**

**FMD**

*Federated*

Federated Metals Division—Dept. A.A.3  
American Smelting and Refining Company  
120 Broadway, New York 5, N. Y.

Please send me a FREE copy of Bearing Alloys Technical Manual.

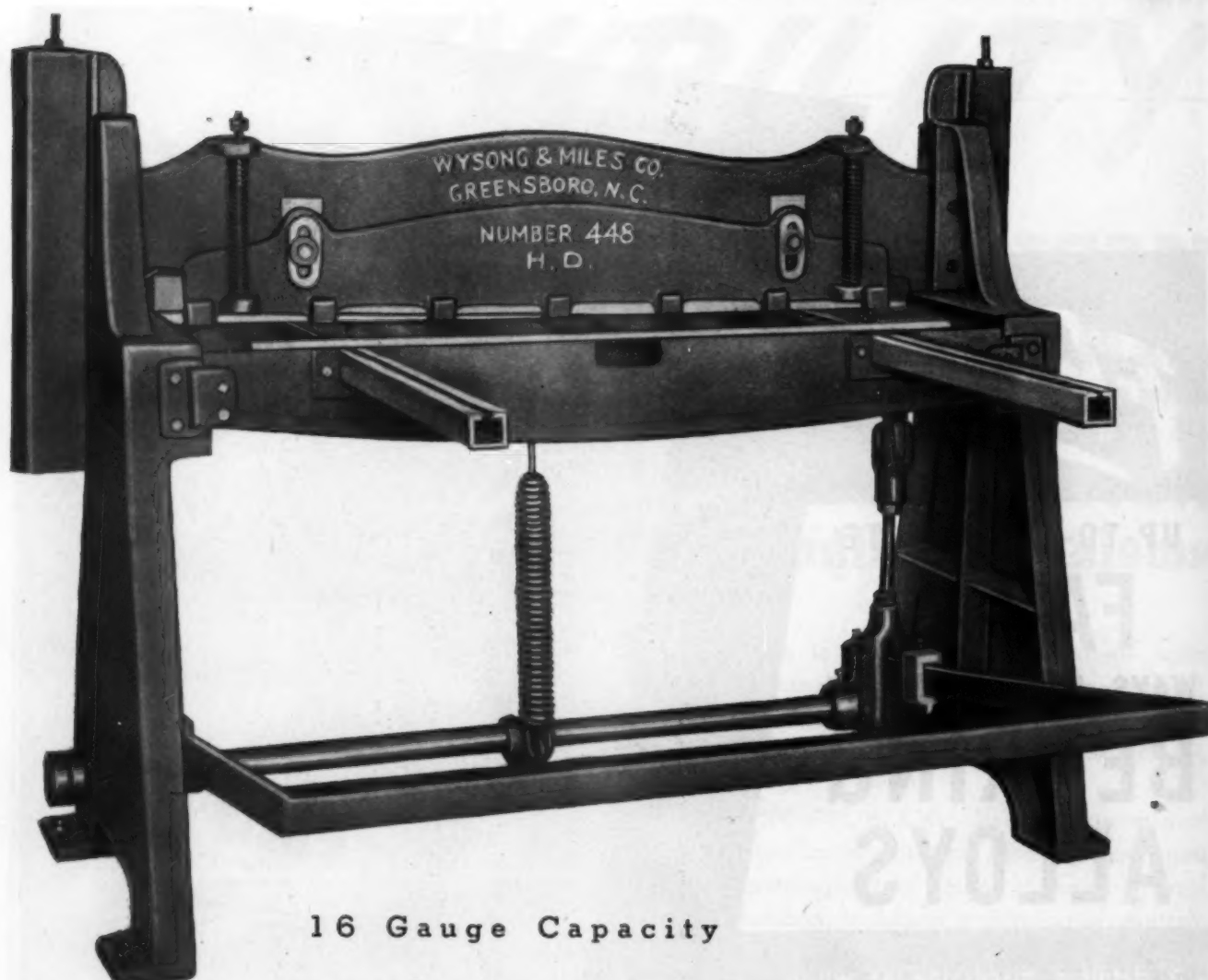
Name

Address

City  State

Company Name





16 Gauge Capacity

## HEAVY DUTY FOOT OPERATED SQUARING SHEAR

*Made in 36", 42", 48" and 52" Sizes*

In spite of existing  
conditions our deliveries  
are comparatively good.

 **WYSONG and MILES CO.**  
*Designers and Builders of*  
**MACHINE TOOLS FOR OVER 40 YEARS**  
**GREENSBORO, NORTH CAROLINA**



# HUSSEY

## *Copper*

Modern Production  
Facilities Assure Constant  
**PRECISION**  
**UNIFORMITY**

Hussey Copper and Copper  
Products have been indus-  
try's standard of qual-  
ity and dependa-  
bility for more  
than 90  
years.



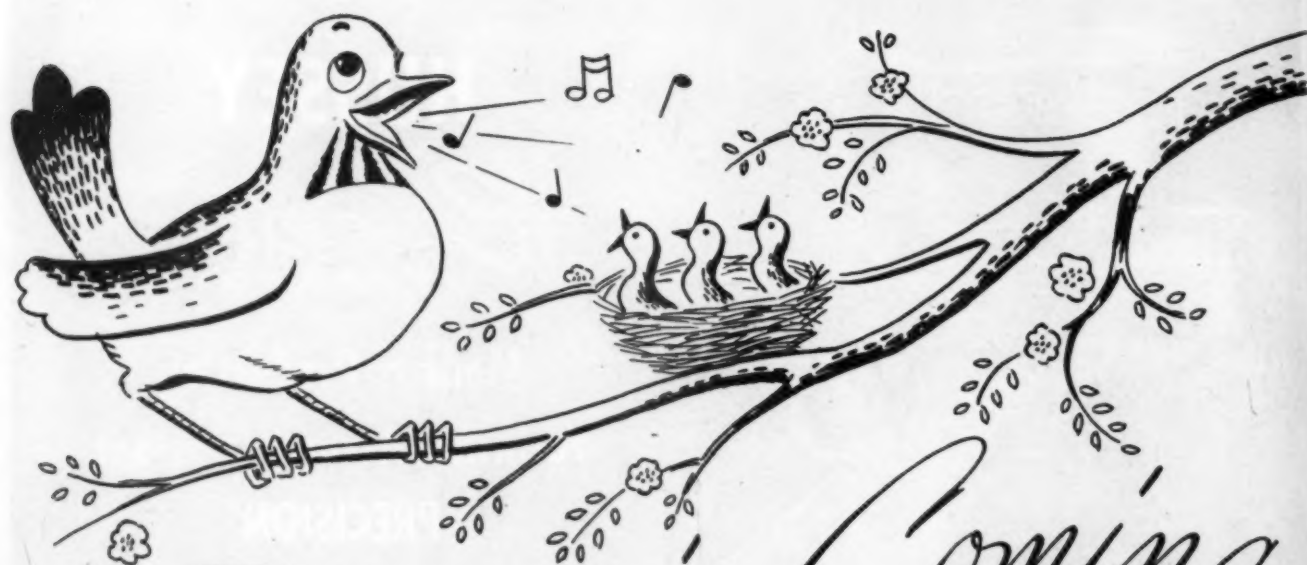
THE METAL WITH A BRILLIANT FUTURE

### **C. G. HUSSEY & COMPANY**

(Division of Copper Range Co.)

Rolling Mill and General Offices: **PITTSBURGH, PA.**

Warehouses in Principal Cities



# Spring is Coming

## WITH A NEW RYBOLT GAS HEATING UNIT



**T**HE coming of Spring will bring with it a new RYBOLT automatic gas heating unit . . . Thoroughly modern in every detail this new series will have special advanced features of sensational importance.

For one thing, when you see it, you'll be amazed at its space-saving compactness—conserving precious space in the basement or utility room. There's another point in its

favor—its universal application for basement recreation room or utility room. Streamlined throughout and handsomely finished, the new RYBOLT gas unit is a delight to the eye.

Our facilities have been expanded to provide ample production on these gas units. In our next advertisement we plan to have the new RYBOLT gas series illustrated and described in detail. Watch for it!



### THE RYBOLT HEATER COMPANY

615 MILLER STREET

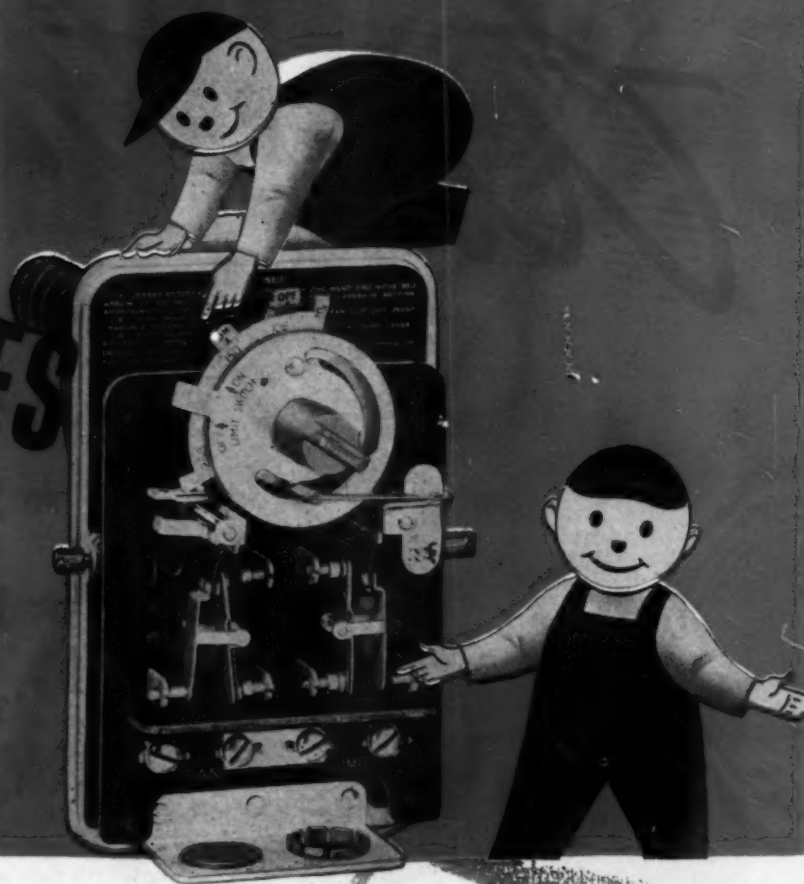


ASHLAND, OHIO



## Twin Contact Controls

**NO  
LEAD WIRES  
TO JAM**



Yes, you can forget about tangled lead wires, short circuits or level position when installing Perfex automatic heating controls. For Twin Contact Controls have no cables to impede free action or foul the control—no lead wires to bind causing off-calibration and inaccurate operation.

Mountable in any position, Twin Contact Controls are easily and quickly installed to operate perfectly—at any angle. Dealers appreciate these engineered-in features that shorten installation time and eliminate costly service calls.

Experience on all types of heating installations has proved to leading automatic heating manufacturers that Twin Contact Controls offer more operating advantages—more reasons why they can affix their trade marks on Perfex controls with complete confidence.

PERFEX CORPORATION, MILWAUKEE 7, WIS. • PERFEX CONTROLS LTD., TORONTO, ONT.

# PERFEX

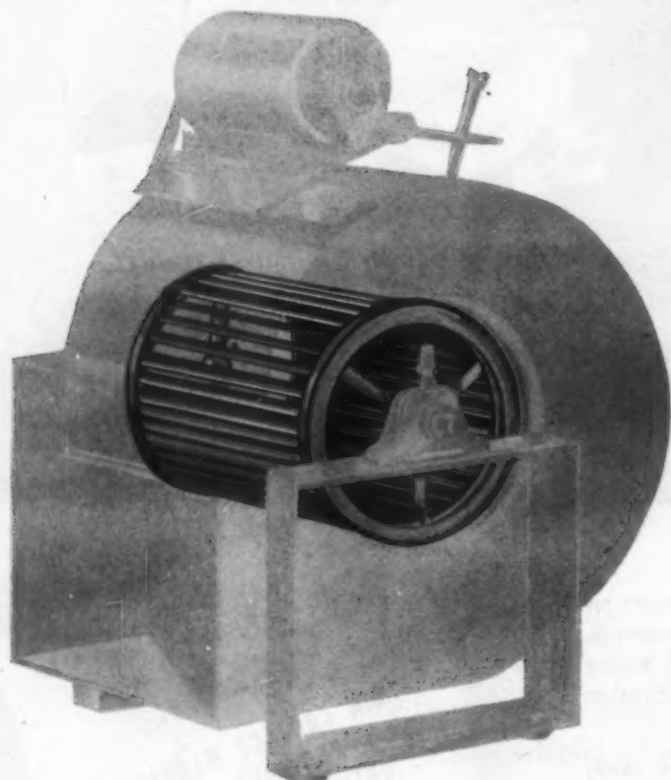
## TWIN CONTACT CONTROLS

MANUFACTURERS OF AUTOMATIC CONTROLS BEARING THE TRADE MARK NAMES  
OF LEADING PRODUCERS OF AUTOMATIC HEATING SYSTEMS AND APPLIANCES

**PERFEX  
Exclusive  
TWIN CONTACT MECHANISM  
PROVIDES THESE  
UNEQUALLED ADVANTAGES**

- **POSITIVE CONTACT**  
Assures longer life,  
no sticking or pitting.
- **MAGNETIC ACCELERATION**  
Closes contacts by snap action.
- **LEVER ACTION**  
With spring tension opens  
contacts cleanly and quickly.
- **WIPING ACTION**  
Assures clean contacts.
- **NO FLEXIBLE LEADS**  
Prevents short circuits and  
interference with mechanism.
- **HIGH SENSITIVITY**  
Instantly responsive,  
yet ruggedly built.
- **IMMUNE TO VIBRATION**  
Satisfactory operation even  
under abnormal vibration.

# MORRISON *Airstream*



★ HIGHEST EFFICIENCY

★ SMOOTH RUNNING

★ LIGHT WEIGHT

These characteristics are the results of the Morrison method (patented) of manufacturing blower wheels.

Complete engineering service available to customers.

Drawings of the proper design of housings for highest efficiency when used with Morrison Airstream Blower Wheels furnished upon request.

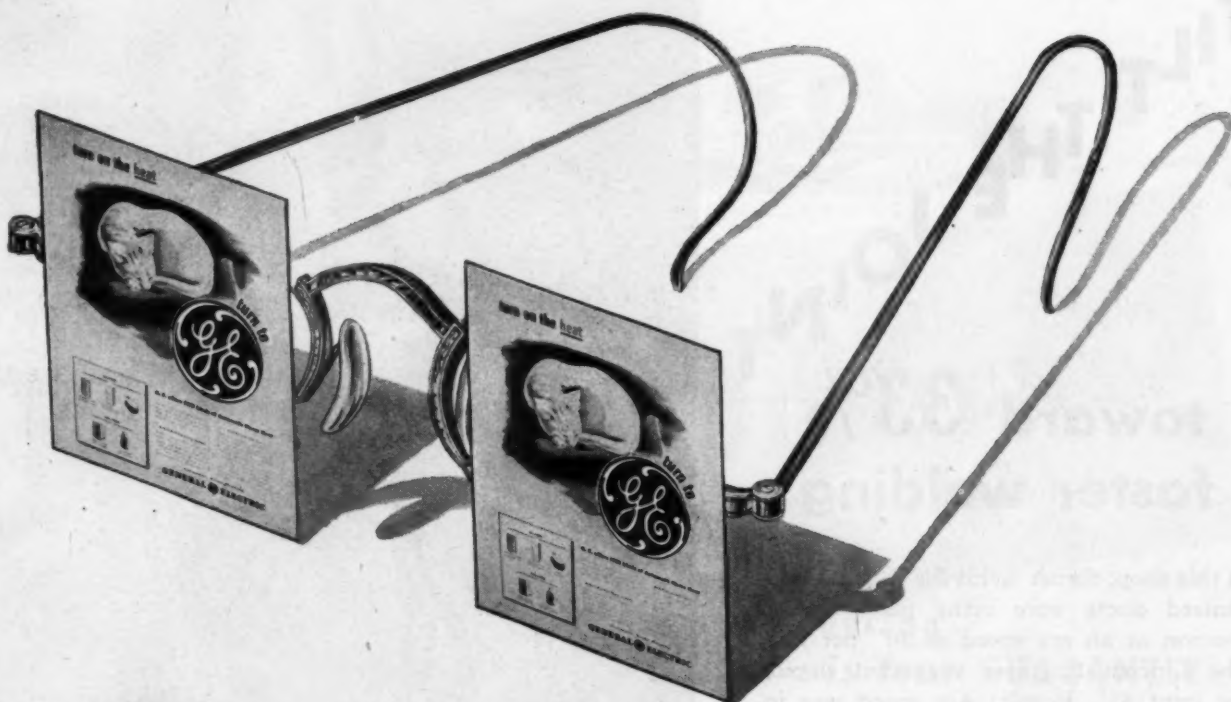
We also furnish housing squares or sides to customers who prefer to purchase same.

Exclusive blower wheel manufacturers for the Warm Air Heating—Evaporative Cooling, and Blower Assembly Industries.



**MORRISON PRODUCTS, INC.**

EAST 168TH & WATERLOO ROAD  
CLEVELAND 10, OHIO



# 13 MILLION FAMILIES ARE SEEING THINGS YOUR WAY

The home-owning, home-buying public in your community is reading dramatic, colorful advertising of G-E heating equipment.

We know, as you do, that you'll have no trouble selling all the heating units you can get for many months to come. But some day, after the first postwar rush for products, it will take strong selling, high quality products, and a good reputation—active demand—to maintain leadership. And G. E. is already fostering the reputation, aggressively creating the demand that will mean profits for you when the going gets tough.



← ← *These popular magazines are  
selling for your future*

Week after week, month after month... in Saturday Evening Post, Collier's, Time, American Home, Better Homes & Gardens, House Beautiful, Sunset... G-E advertising hammers home to 13,000,000 families the story you want told. It's selling the idea that G-E reliability, G-E performance... in gas and oil heating units... for warm air, hot water, steam, or vapor systems... is well worth waiting for.

Take advantage of this G-E campaign to build your own reputation... for future sales and profits. General Electric Co., Air Conditioning Department, Section 6533, Bloomfield, N. J.

**GENERAL  ELECTRIC**  
**Automatic Heating Equipment**



# TILT THE JOINT

toward 33%  
faster welding

In this shop, corner welds for 18 gauge galvanized ducts were being made in flat position at an arc speed of 30" per min. The Lincoln Engineer suggested sloping the joint 45°. Result: Arc speed was increased to 40" per min. . . . 33% faster.

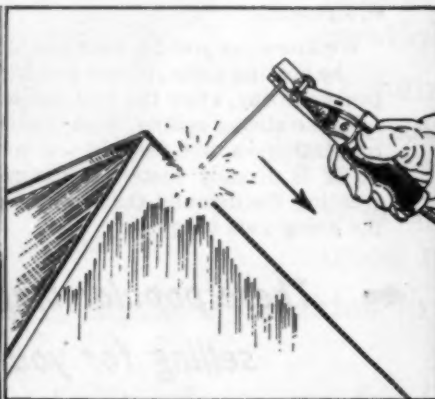
Ducts are 46" x 46", 36" long. First tack welded every 6" as shown. Then finish welded downhill. All welding with  $\frac{1}{8}$ " "Fleetweld 35" with a "Shield-Arc Jr." (D.C.) welder.



*Courtesy Valley Carnice and Slate Co. Saginaw, Mich.*



*First tack welds made at corners as shown.*



*Finish welds made downhill, joints sloped 45°.*



*"Shield-Arc Jr."... for sheet metal profits.*

## Link-up with LINCOLNEERING for sheet metal profits

Call the nearest Lincoln office for Lincolneering Service. Sheet metal welding procedures free on request. Write for Bul. 444.



**THE LINCOLN ELECTRIC CO.**

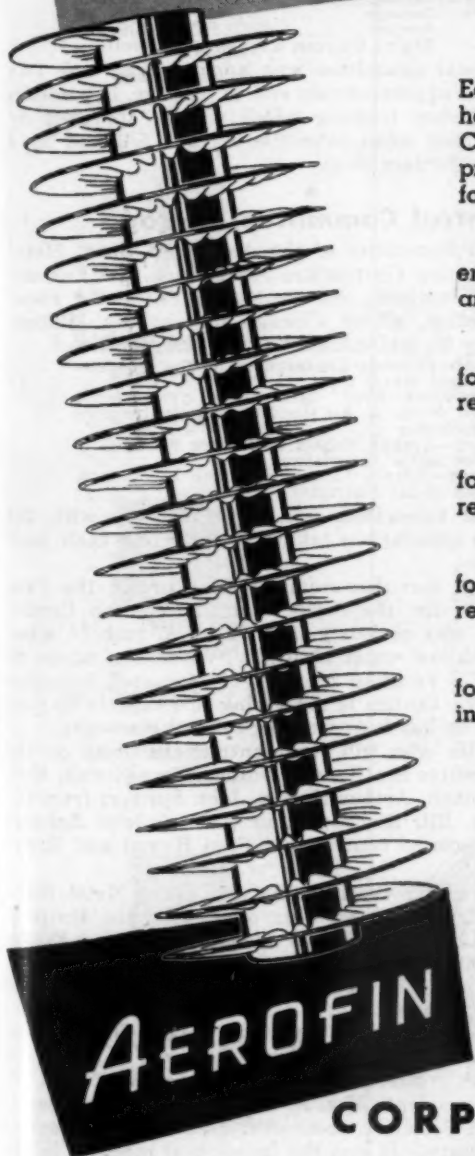


DEPT. L-2, CLEVELAND 1, OHIO



**You're Way Ahead If You Have  
the **RIGHT EQUIPMENT**  
for the Job!**

**Aerofin's Dependable Engineering  
is Your GUARANTEE**



#### **FLEXITUBE AEROFIN FOR STEAM HEATING**

Each tube built to expand and contract independently, thus relieving headers, tubes and tube joints of strains due to temperature changes. Crowned orifice insures equal steam distribution to each tube and prevents freezing due to clogging of tubes by scale and other foreign matter.

#### **NON-FREEZE AEROFIN COIL**

embodies all of the features of Aerofin Flexitube, plus non-stratifying and non-freeze features for any entering air conditions.

#### **UNIVERSAL AND HIGH PRESSURE AEROFIN**

for steam heating where a heavy coil of rugged construction is required.

#### **CONTINUOUS TUBE WATER COIL**

for cooling or heating with water, brine or other non-volatile refrigerants.

#### **REMOVABLE HEADER WATER COIL**

for same duties as Continuous Tube Coil, with added feature of removable header for complete cleaning and draining of each tube.

#### **DIRECT EXPANSION COOLING COIL**

for cooling with volatile refrigerant. Patented distributing headers insure perfect distribution for all loads.

#### **SPECIAL COILS FOR SPECIAL APPLICATIONS**

For long, trouble-free, low-cost service select the right type, design, size and material. Aerofin units are insurance against costly changes and repairs:

Metallic bond of fin and tube is not injured by expansion or contraction.

Rigid material specifications and inspections assure quality that maintains Aerofin's dependable ratings.

Special coatings or non-corroding metals can be furnished to prevent chemical damage.

For highest practical heat exchange, over 100,000,000 feet of Aerofin have been installed.

**CALL IN AN EXPERIENCED AEROFIN FIELD ENGINEER  
FOR THE WHOLE STORY ON HEAT EXCHANGE.**

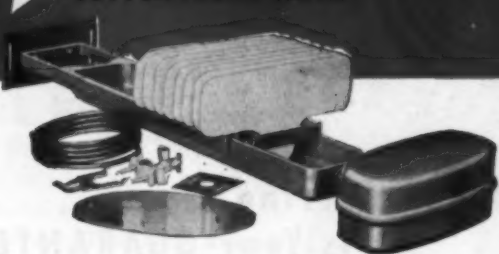
**CORPORATION**

410 South Geddes St., Syracuse 4, N. Y.

CHICAGO • DETROIT • CLEVELAND • NEW YORK • PHILADELPHIA • DALLAS • TORONTO

## Check these advantages in the New Viking Humidifier

VIKING "TOP SEAT" FLOAT VALVE  
COPPER FLOAT TANK



### For Dependable Humidification

#### Positive Action



Throttle type action maintains the proper water level at all times... no complicated high and low level actuating points.



For occasional servicing or cleaning the brass wing nut can be loosened and the whole assembly exposed.



Disengage the "brass cotter key" and the complete float assembly can be removed for inspection or cleaning.

Here is the humidifier you've been waiting for. Simple and easy to install and designed to operate for years with little or no attention.

Exhaustive study and research under actual operating conditions has dictated the need for a simple, easy to clean valve and an acid resisting water supply tank. Viking has the solution.

#### THE VALVE

Made entirely of brass and located above the water level in the supply tank. Simple rocker action... no springs no sliding parts.

#### THE TANK

Deep drawn from 24 oz. copper in a single piece... no seams... no welds. Located outside the bonnet or plenum... readily accessible for occasional inspection or cleaning.

#### WRITE TODAY

...get complete information and specifications on a dependable humidifier.

# Viking



AIR CONDITIONING CORP. 5600 WALWORTH AVE. CLEVELAND 2, OHIO

## Association Activities . . .

### Detroit

The Detroit Association of Warm Air Heating and Air Conditioning Contractors, Inc., announce the following list of new officers and directors:

President.....Otto Schultz  
Vice-President.....Marshall Van Assche  
Secretary.....Gerald Beecraft  
Treasurer.....R. C. Look  
Directors.....S. A. Horvat,  
Ray Turnbull, A. V. Cauhorn, Wm. Vernier

The Detroit Safety Furnace Pipe Company furnished the refreshments for the February meeting, and John Boatman will supply refreshments for the March meeting.

### Fox Valley

The annual meeting of the Fox Valley Furnace & Sheet Metal Contractors' Association was held at the Fairbanks Cafeteria, Aurora, Illinois, on January 15th.

Various committees reported and the following officers and directors were elected for 1946:

President.....Jack Stowell, Aurora  
1st Vice-President.....Fred R. Lamp, Elgin  
2nd Vice-President.....Alvin Lohbauer, Elgin  
Secretary.....William B. Stevens, Aurora  
Treasurer.....Andrew Lind, Dundee  
Sergeant-at-Arms.....George Bushman, Aurora  
Directors: Oswego.....Henry Heffelfinger  
Aurora.....Don Glossop  
Elgin.....Clayton Evelien, Fred Noiting

An educational committee was appointed to look into GI training and apprenticeship and to prepare, if possible, a program of shop training which will be approved by Veterans Training when submitted by and followed by a sheet metal or furnace shop.

### Central Committee, Chicago

The Central Committee of the Associated Sheet Metal & Air Conditioning Contractors Association, the Furnace & Sheet Metal Institute, and the Master Furnace & Sheet Metal Association, all of Chicago met at the Midland Hotel, January 30, and elected the following officers:

President—Herman Zimmerman of the Furnace & Sheet Metal Institute  
Vice-President—Fred Hempel of Associated Sheet Metal & Air Conditioning Contractors Association  
Secretary—Arthur Nelson of Master Furnace & Sheet Metal Association  
Treasurer—Marvin Lawrentz of the Furnace & Sheet Metal Institute

The Central Committee will meet monthly with the three Chicago associations taking turns, before their local meeting.

Lou Reining, manufacturers' agent, thanked the Central Committee for the flowers sent to his son Curtiss Reining, who was seriously injured on August 11 when diving into shallow water at Ripley, Wisconsin, where he was spending a vacation prior to his expected induction into the Army. Curtiss is recovering and expects to soon shed the cast he has been wearing for many months.

The delegates who will represent the Institute on the Central Committee are Rudy Guenther, Tom Novak, Herman Zimmermann, Arthur Nelson, John Spitzer; from the Master group, Bill Kirby, Arthur Nelson, John Spitzer; from the Associated contractors, Fred Hempel and Erwin Klawinski.

The Furnace, Air Conditioning and Sheet Metal Institute held their regular monthly meeting in the Institute Research Building at 1916 W. Fullerton Avenue, on February 22. Some progressive suggestions were discussed. The regular monthly meeting will be held on the third Friday of each month.

The Ladies Auxiliary of the Institute held their regular monthly meeting in the Institute Research Building on February 27th. Mrs. C. Bothfeld is president; Mrs. E. Tippet, vice president; Mrs. E. Guenther, recording secretary; Mrs. F. Cottleer, treasurer; Mrs. F. Turk, corresponding secretary. It was the ladies first meeting in the Research Building and was well attended.

Arthur Johnson, Secretary.



# THE FLUID HEAT LINE POINTS THE WAY TO BIGGER OIL HEAT SALES



## 4 Pressure Burners

Firing rates from  
7/10 to 12  
gallons per hour



## 6 Vertical Rotary Burners

Firing rates from  
7/10 to 6  
gallons per hour



## 3 Air Conditioning Furnaces

From 120,000 to  
200,000  
BTU per hour



## 6 Boiler Burner Units

Capacities from 475  
to 840 sq. ft. of  
standing hot water

Investigate a Fluid Heat Dealer Franchise now . . . and you'll take a big step toward cashing in on the huge potential oil heating market. That's because Fluid Heat is tailor-made for dealer benefits . . . built on the practical, profit-producing teamwork of these five points:

- 1 An active, experienced Fluid Heat sales force is ready to pitch in and help your organization—on problems of installation, operation, service or sales.
- 2 Our business has been built by helping *dealers* build theirs . . . in a mutually cooperative effort. We know that what helps the dealer, helps Fluid Heat.
- 3 The Fluid Heat trade-mark has won solid consumer acceptance through the years with well-designed, well-constructed units . . . an important sales weapon for dealers.
- 4 A really complete line makes it easier to satisfy your customers' wants . . . widens your sales opportunities.
- 5 A top-notch development laboratory—staffed by engineers long experienced in the oil heating industry—keeps you ahead of competition.

WRITE  
TODAY

Get full details on a Fluid Heat Franchise. No cost. No obligation. Address: Fluid Heat Division, Anchor Post Fence Co., 6720 Eastern Ave., Baltimore 24, Md.



Visit the Fluid Heat Booth  
No. 534.

# fluid heat

PRODUCTS

"WORLD'S ECONOMY CHAMPION"

Manufactured by the Anchor Post Fence Company,  
Baltimore, Md., Established 1892

Keep a Drum  
of \*Profits on Your  
Truck!



## \* FIRELINE for lining cracked Firepots

If you think that's just a drum of Fireline on your truck, look again! That's a drum of profits. Figure it out: Firepot repair jobs are plentiful; the way to make money is to do a lot of them—fast. Compare what you can get for a Fireline job and for a casting replacement job and you'll see that your higher profit percentage in Fireline, plus the speed it puts into the job, means more money for you!

When you line a cracked firepot with Fireline, the fire can be started immediately. Heat bakes Fireline into the one-piece lining that won't leak gas, odors, or soot into the house. All the work is done through the furnace door—no dismantling necessary.

Fireline is a putty-like refractory in moist, plastic form. It's ready to use—nothing to mix—nothing to add. Quickly, easily installed, it provides a durable lining that produces a hotter fire across the entire fuel bed. It is often used, in fact, to preserve firepots still in good condition and to improve combustion efficiency. For steel furnaces, it can be moulded to any shape to replace refractory tile.

Ironset Asbestos Furnace Cement—The high-quality cement for setting up new furnaces and re-cementing old ones. Withstands higher temperatures. Will not crack, shrink, bloat or blister. Makes your work more permanent. Try it on your next job and see how the word-of-mouth advertising produces more new jobs for you.



Fire-Hearth Castable—The ideal refractory for setting stokers, precast combustion chambers, and baffle tile. In dry form; sets without heat after being mixed with water.



Fireline heating specialties are carried by leading jobbers. Write for free descriptive literature, prices, and discount.

**FIRELINE STOVE & FURNACE LINING CO.**  
1816 N. Kingsbury St. (Dept. C), Chicago 14, Ill.

# FIRELINE

STOVE & FURNACE LINING

## Association Activities

### Propeller Fan Manufacturers

At the annual meeting of the Propeller Fan Manufacturers Association held at the Hotel Statler, Detroit, February 13, 1946, the following officers were elected:

President.....M. L. Aitken  
Vice-President.....H. M. Guilbert  
Acting Secretary.....L. O. Monroe

Mr. Aitken is manager of Propellair, Inc., Springfield, Ohio, and Mr. Guilbert is manager of the Propeller Fan Division of B. F. Sturtevant Company, Boston.

### Chicago

The Furnace, Air Conditioning & Sheet Metal Institute, Chicago, met on March 15th, with a good attendance. The next regular meeting is scheduled for Friday, April 12. The new floor has been laid and the inside of the Research Building at 1916 W. Fullerton Avenue is in fine shape.

Treasurer Louis Drehoel is in the hospital for an eye operation, and Institute members are hoping for his speedy recovery.

Vice-President Tippet's 17-year-old son is in a hospital in Waukegan, Illinois. He will live in Arizona for his health, and is seeking a place to live and go to school.

Arthur Johnson, Secretary.

### Illinois

The Illinois Sheet Metal Contractors Association has set up the following program for their annual convention in Peoria, Illinois, on April 8 and 9, at the Jefferson Hotel:

#### Monday, April 8th, Morning Session

1. Greetings from Peoria association. R. W. Wallis, past president Peoria association.
2. Use of aluminum as applied to the sheet metal contractor. Speaker to be supplied by Aluminum Company of America.

#### Monday, April 8th, Afternoon Session

1. The National Warm Air Heating and Air Conditioning Association report on its activities. F. E. Mehrings, president, Nat'l Warm Air Heating and Air Conditioning Association.
2. Refresher Course in Sheet Metal Work for Contractors and Employees. O. W. Kothe, St. Louis Technical Institute.
3. Flue Condensation Problems. L. Packer Brown, Condensation Engineer Corp., Chicago.

#### Tuesday, April 9th, Morning Session

1. Address by P. S. Varden, President, National Sheet Metal Contractors Association.
2. Apprenticeship Training. Frank Kramer, Chairman Apprenticeship Training, National Sheet Metal Contractors Association.
3. Multi-speed Blower Action. M. W. Bowen, National Thermal Drive Co., Minneapolis.

#### Tuesday, April 9th, Afternoon Session

1. Revere Copper & Brass Co., Sound Pictures (Tentative).
2. Gas Heating Merchandising. Ralph A. Caylor, Surface Combustion Corporation.
3. Stoker Problems. Roy Graham, Stok-A-Fire Co., St. Louis.
4. Current Research Development Work in Warm Air Heating. Wm. Johns, Urbana, Illinois.

#### Tuesday Evening, April 9th

Banquet Speaker. F. R. (Bill) Oakley.

W. Rex Shaw, Secretary, 695 State St., Jacksonville, Ill.

William Orton, son of Harvey L. Orton of The Orton Heating Company, Barberton, Ohio, has joined the sales and engineering department of his father's company. William Orton enlisted before Pearl Harbor and served as first lieutenant in a tank division of the First Army. He received the Purple Heart for wounds received in the Battle of the Bulge.



Wm. Orton

Edward M. Pluth, of Lincoln, Illinois, president of the Illinois Sheet Metal Contractors' Association, enjoyed a much needed rest at the Majestic Hotel, Hot Springs, Arkansas, early in February.



**"Next time  
I won't show him the picture  
.....until last!"**

This Fairbanks-Morse District Representative watches another of his Distributors take a look at the picture of the new 1946 Fairbanks-Morse Stoker and immediately rush out the door to tell his dealers.

Fairbanks, Morse & Co.  
Fairbanks-Morse Bldg., Chicago 5, Illinois

**FAIRBANKS-MORSE**



**A name worth remembering**

DIESEL LOCOMOTIVES • DIESEL ENGINES • MAGNETOS • GENERATORS • MOTORS • PUMPS  
SCALES • STOKERS • RAILROAD MOTOR CARS and STANDPIPES • FARM EQUIPMENT



*You Get Everything  
You Want in a Stoker  
Line When You Sell...*

# FREEMAN STOKERS

FIRST CHOICE OF AMERICA'S  
FOREMOST HEATING ENGINEERS

PIONEER OF THE STOKER  
INDUSTRY... ONE OF THE  
LEADERS IN NATIONAL  
SALES VOLUME!



ALL SIZES  
NOW AVAILABLE

A COMPLETE LINE  
★  
YEARS OF EXPERIENCE  
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PERSONAL COOPERATION  
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ENGINEERING LEADERSHIP  
★  
FINANCIAL STRENGTH  
★  
AGGRESSIVE PROMOTION

FREEMAN STOKER DIVISION  
ILLINOIS IRON & BOLT CO.  
918 S. MICHIGAN AVE., CHICAGO 5, ILLINOIS

## New Literature

For your convenience in obtaining copies of  
New Literature use the coupon on page 128.

### 118—How to Choose a Stoker

Whiting Stokers, 11 South LaSalle Street, Chicago 3, has just released a booklet entitled "How to Choose A Stoker"—28 pages giving a history of Whiting Stokers and the Lidgerwood Manufacturing Company. The hopper is pictured and described; the hopper base; the feed screw; burner tube; the air supply; the burner head; the transmission and motor; the fire power; the Standard, the DeLuxe, and the model for larger requirements; and the bin-feed models.

### 119—Multi-Speed Blower Control

The National Thermal Drive Co., Inc., Highway 61 and Kohlman Ave., St. Paul 9, Minnesota, is distributing a four-page folder with space for dealer imprint, covering the Multi-Speed Blower Control for warm air winter air conditioning systems—oil, gas, hand or stoker-fired coal.

The control has been designed to vary the speed of the blower in direct proportion to the temperature in the bonnet of the furnace. The higher the temperature, the faster the blower will rotate. As the temperature decreases, the blower runs slower and slower until it reaches a point where it revolves just enough to keep the air circulating in the rooms above and to draw off the cold air, thus preventing stratification. This hydraulic blower control simply replaces the ordinary blower pulley. The coil at the end of the capillary is mounted in the warm air duct or "plenum chamber." The fan switch is set at 90 deg. F. to allow the blower motor to operate continuously when bonnet temperatures are above 90 deg. F.

### 120—Corrosion of Steels

Carnegie-Illinois Steel Corporation and other subsidiaries of United States Steel Corporation, 429 Fourth Avenue, Pittsburgh 19, have just published "Corrosion of Steels," a 16-page 6x9-inch booklet, which indicates how various commercial steels may reasonably be expected to resist the attack of atmospheric corrosion in particular. The summary, brought up to date by Dr. John Johnston, Director, Research Laboratory, United States Steel Corporation, includes only information now generally accepted as reliable. Copies may be secured upon request.

Prevention of undue corrosion of steels in service is not a single problem but comprises a multitude of problems, each of which must be investigated separately. The ordinary accelerated test is far from a trustworthy indicator of what will happen to the metal in any environment other than precisely that in the test itself and great caution must be exercised in interpreting the results.

Figure 1 in the new booklet shows how the degree of resistance of an ordinary steel to atmospheric corrosion depends upon its copper content until the metal contains about 0.20-0.25 per cent copper. Comparative corrosion rates over a period of as much as 8 years of a plain steel (0.04 per cent copper), a copper steel (0.20 per cent copper), and U.S.S. Corten in an industrial and a marine atmosphere are shown in Figures 2 and 3.

The most important item in obtaining good protection of metal by a paint, or by any coating, is not the precise composition of the metal, but the proper preparation of the metal surface before the coating is applied. A priming coat containing an inhibitive pigment such as red lead or a chromate is advantageous, but its use will not make up for lack of care in preparing the metal surface. The useful life of a paint, properly applied, is in general longest on Cor-Ten, somewhat less on copper steel, and much less on steel of very low copper content.

# *This Mark of Merit*

on **SUNBEAM** Winter Air Conditioners and Warm Air Furnaces

is backed by the best-known name in Heating

**T**HE American-Standard Mark of Merit stands for the best in heating equipment.

Products bearing this symbol are backed by more than half a century of successful experience . . . in Serving the Nations' Health and Comfort . . . in consistently, continuously advertising to buyers of warm air heating equipment.

Millions of families who are going to modernize and build—many in your own city—will see this Mark of Merit in their favorite magazines. Millions more will see it displayed by Heating Contractors everywhere.

To profit by the tremendous public acceptance of products bearing this easy-to-remember Mark of Merit, contact your nearest American-Standard Wholesale Distributor. He can give you information about time-tested, performance-proved **SUNBEAM** Winter Air Conditioners and Warm Air Furnaces. He also will explain our FHA Time Payment Plan for your remodeling jobs. **American Radiator & Standard Sanitary Corporation**, P. O. Box 1226, Pittsburgh 30, Pa.



# New Literature

For your convenience in obtaining information regarding these items, use the coupon on page 128.

## 121—Registers, Grilles and Diffusers

A-J Manufacturing Co., 2119 Washington Street, Kansas City 8, Mo., is distributing a loose-leaf catalog with dealer discount sheet. List prices are included. The first 22 pages illustrate and describe registers and grilles, with specifications. The final eight pages cover A-J diffusers, both single and double. Construction features and finish are included.

## 122—Multi-Room Air Conditioning

Carrier Corporation, Syracuse, N. Y., has just issued a 40-page catalog in color titled "Air Conditioning for Multi-Room Buildings." Advantages of air conditioning for hotels, hospitals, office and apartment buildings are told, and the five Carrier systems explained in photographs and charts. Copies may be obtained by sending a request on a business letterhead to Leslie M. Beals, director of advertising and sales promotion.

## 123—Arc Welding Accessories Catalog

Air Reduction Sales Company, 60 East 42nd Street, New York 17, has just published an up-to-date price list and catalog of Airco arc welding accessories. This 12-page booklet illustrates and describes a complete line of accessories for arc welding machines and operations.

Equipment covered includes electrode holders, graphite electrodes, welding cable, cable connectors, and cable lugs.

Also listed are: welding helmets, goggles, face shields, headgear, aprons, gloves, and sleeves.

An additional section is devoted to Airco Heliwelding equipment which was developed in response to pressing demands for a better method of welding magnesium.

## 124—Registers, Grilles and Accessories

Hart & Cooley Manufacturing Co., Holland, Michigan, offers Cat. No. 46—52 pages and cover—presenting their postwar simplified line, with list prices. The National Warm Air Heating and Air Conditioning Association standardization recommendations are included.

Twelve pages are devoted to the gravity line of registers, intakes, and ceiling ventilators, and a table of "areas leading pipe sizes"; 20 pages to air conditioning technical data, registers, grilles, intakes, installation frames; 12 pages to accessories—furnace regulator sets, damper regulators, warm air dampers, damper clips and tips, furnace chain, pulleys, casing clips, split key rings, "S" hooks; and 1 page to display panels of leading items.

## 125—Selection of Welding Electrodes

Wilson Welder and Metals Co., Inc., 60 East 42nd St., New York 17, has published "Arc Welding Electrodes," a 32-page illustrated catalog designed to guide users in the selection of the right electrodes for any specific job.

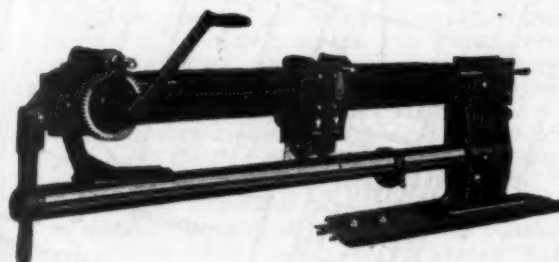
This catalog supplies complete data on the proper electrodes to be used for all types of work on a wide variety of base metals, and describes the approved welding procedures for each application.

Electrodes are recommended for use on mild steel, alloy steels, low alloy high tensile steel and stainless steels. Additional sections are devoted to electrodes designed for non-ferrous metals such as aluminum bronze, aluminum, and manganese bronze.

Chemical analyses, specifications, and other engineering data are supplied for each electrode.

# PEXTO speeds, improves SHEET METAL FABRICATION

When a qualified operator starts a job on a PEXTO machine he knows where he's going . . . and he gets there quicker, easier. The design, the strength, the controls of each type of machine contribute to better work at the lowest expenditure of man-hours.



GROOVING MACHINES, HAND AND POWER

THE PECK, STOW & WILCOX COMPANY Since 1785 — SOUTHLINGTON, CONNECTICUT, U. S. A.



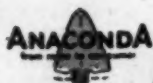
# Every House Needs Chimney Flashings ... make them **COPPER**

IT DOESN'T take much sheet copper to flash a chimney. So use this durable metal on every job.

Even on small, inexpensive homes . . . not to mention larger residences and other buildings . . . it pays to use copper not only for chimney flashings, but also for ridges, valleys, gutters and downspouts.

As you know, copper is an easy metal to work with . . . readily bent, formed and soldered. Possessing adequate strength and toughness, freedom from rust, and a high degree of corrosion resistance, copper provides lasting, low-cost protection.

*Right now* is the time to let this durable, rustless metal build good will for you.



## Anaconda SHEET COPPER

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General Offices: Waterbury 88, Connecticut

Subsidiary of Anaconda Copper Mining Company

In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ont.



# New Literature

For your convenience in obtaining copies of New Literature use the coupon on page 128.

## 126—Straightening and Bending Rolls

Kane & Roach, Inc., Niagara & Showard Sts., Syracuse, N. Y., offers literature covering their straightening and bending rolls—cold roll forming machinery—for the manufacture of plain round and round corrugated downspout; corrugated square downspout, gutters.

## 127—Ventilation Equipment Design

Illinois Sheet Metal, Ltd., 23 West Hubbard Street, Chicago 10—fabricators, ventilating engineers, contractors—is distributing a 4-page folder No. J-618 showing some of the products they fabricate; designed individually to remedy heat, dust or fume conditions. The company fabricates their own fans and blowers, and makes hoods, ducts and pipes.

## 128—Type "BL" Hole Punching Units

Wales-Strippit Corporation, 345 Payne Avenue, North Tonawanda, N. Y., offers catalog BL covering Wales Type "BL" hole punching units for punching sheet metal up to 1/8 inch thick. These units have punches, dies, stripping guides, stripping springs and guide buttons designed into a holder which automatically aligns punches and dies. The only function of the ram is to depress the punch through the work. These units may be set up on T-slotted plates or mounting plates in stamping presses and on rails or

T-slotted plates in press brakes. This permits setting up unlimited patterns with the same units.

## 129—Register and Grille Catalog 12

Register & Grille Manufacturing Co., Inc., 70 Berry St., Brooklyn 11, is distributing catalog No. 12—24 pages (8 pages 8 1/2 x 11 and the center 16 pages 4 1/4 x 11). The center sixteen pages are devoted to R & G performance tables of the face and the shutter, each of which performs a different function. The outside eight pages cover perforated plain lattice steel grilles, special constructions applicable to all types of registers and grilles, register faces or grilles, capacity tables, definitions and standard trade practices, no-vision grilles, wrought steel ceiling outlets, brick ventilator, special design cast grilles and perforated grilles.

Ornamental designs are shown in a special catalog.

## 130—Armco Aluminized Steel

The American Rolling Mill Company, 939 Armco Avenue, Middletown, Ohio, has published "Armco Aluminized Steel," a 24-page booklet that describes one of Armco's newest special-purpose sheet steels for resistance to heat and corrosion.

Aluminum-coated on both sides, Aluminized Steel resists destructive heat scaling up to 1500 deg. F. It maintains a bright shiny appearance after prolonged heating up to 900 deg. F., has good atmospheric corrosion resistance, and good radiant heat reflectivity. In addition this new sheet possesses the strength of steel at moderately elevated temperatures and has a lower coefficient of expansion than some of the widely used non-ferrous metals.

The booklet is fully illustrated with charts, photographs and tables, and contains sections on Heat Reflectivity, Mechanical Properties, Forming Properties, Painting and Finishing, Electrical Conductivity, Welding, Brazing, Soldering.

# TRIANGLE SHOCK ABSORBING PILLOW BLOCK

Designed by Triangle engineers for fans, blowers and other devices requiring silent operation, perfect alignment and self-lubrication.



Preloaded oil-proof cushion built into the bearing. Ball-and-socket design. Write for samples and complete information.

**TRIANGLE MANUFACTURING CO.**

392 DIVISION STREET

OSHKOSH, WISCONSIN

# ZINC provides Double Protection against... Rust and Corrosion

Zinc in the form of galvanizing provides double protection. *First*, by simple coverage, with a sheath of rust-resistant metal. *Second*, by electrochemical action or "sacrificial corrosion".

The protective action is positive and lasting: so long as the zinc coating remains intact, rusting cannot occur. Small scratches or breaks in the zinc coating are "healed" by the sacrificial corrosion of the zinc itself, so that the base metal underneath will not rust.

## Let ZINC Help to reduce Maintenance Costs!

The enormous cost of fighting the destructive action of rust on iron and steel can be greatly reduced by using zinc as a rust-preventive coating. Buildings, hardware, equipment, machinery—all can be protected with zinc. Zinc can be applied by hot-dip galvanizing, electro-plating, sherardizing, painting: all these methods are practical and valuable in various applications. It is sound good sense and simple economy to specify zinc wherever possible.

For your information and guidance, the Zinc Institute has prepared some booklets containing practical information on the use of zinc. You will find it profitable to have them. Write for them today—they cost you nothing



**American Zinc Institute**  
INCORPORATED  
**60 East 42<sup>nd</sup> Street, New York 17, N.Y.**

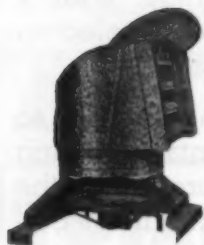


A Line of  
Roof Ventilators  
that Gives You  
*"Everything"*

In Style or Size, there's a

**Swartwout  
VENTILATOR**

to bring you success in  
licking each ventilation  
job in industrial  
or commercial buildings



The ROTARY  
The AIRJECTOR  
The AIRMOVER  
The Heat Valve

THIS YEAR you'll have new activity in reconversion, new buildings, remodelling. All are opportunities for you to make profits in ventilating jobs. You can take special pride in the installations you make with nationally known Swartwout Roof Ventilators—the Airmover Line. Write for details.



The Swartwout Co., 18511 Euclid, Cleveland 12, O.

**Swartwout**  
ROOF VENTILATORS

# New Literature

For your convenience in obtaining copies of new literature use the coupon on this page.

## 131—Welding Accessories

The Hobart Brothers Company, Troy, Ohio, announces a new line of arc welding accessories for the welding trade, described and illustrated in folder DM-709. All, and many difficult to find items are identified with catalog numbers for simplification in ordering.

## 132—Coey Cooling Tower

Rogers Diesel and Aircraft Corporation, 1120 Leggett Avenue, New York 59, is distributing an 8-page circular covering the Coey floating film cooling tower.

"Water pouring in from the top of the tower is met by a counter flow of air at a velocity of approximately 1,500 feet per minute. The force of this air causes the entire stream of water to break in droplets, substantially all the same size. The air which is forced upward through the Coey tower at a rate of 1,500 fpm is guided, in a slightly horizontal direction, by means of the tower's interior design. The water droplets flow slowly downward across the air stream as a thin, floating film of water, and each droplet is surface cooled. This cooling process is repeated five times in the Coey tower. Five times during their downward course, the droplets are collected, and cooled surfaces are mixed with warmer droplet centers for an overall lower temperature. Then the stream is broken into floating film again. This five stage operation insures precise control . . . maximum cooling."

A performance chart showing wet bulb, percent full load rating water flow, and water temperatures at cooling tower cooling range.

## 133—Let's Plan a Peacetime Home

Surface Combustion Corporation, Toledo 1, Ohio, has released a 114-page book in color entitled "Let's Plan A Peacetime Home," illustrated with house plans, room plans and room arrangements. Price \$1.00 a copy.

Leading architects have contributed floor plans and renderings of homes in a wide range of architectural styles. Prominent home planning authorities discuss selecting the site, architectural styles, kitchen and room planning.

The possibilities for remodeling old houses are illustrated with a discussion of the physical and economic considerations which determine the practicability of such an investment.

### FOR YOUR CONVENIENCE

American Artisan, 6 N. Michigan Ave.  
Chicago 2, Ill.

Please ask the manufacturer to send me more information about the equipment mentioned under the following reference numbers in "New Products" and "New Literature." (Circle numbers in which you are interested):

12	13	14	15	16	17
18	19	20	21	22	
118	119	120	121	122	123
124	125	126	127	128	129
130	131	132	133		

Name .....

Company .....

Address .....

Are you Manufacturer—Jobber—Dealer—

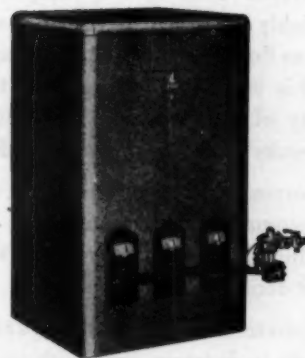


Continuing the progress and expansion that have characterized "PAYNEHEAT'S" entire 30-year history, we have undertaken . . .

#### A QUARTER-MILLION DOLLAR EXPANSION PROGRAM

. . . including two additions to the factory, totaling 64,000 sq. ft. and the installation of new conveyer systems to speed line-production and loading. The objective is to double our output and "get set" to deliver orders as received. ★ Our immediate problem is a backlog equivalent to an entire pre-war year's production. Thank you for these record orders . . . and thanks again for waiting. ★ Your patience should soon be rewarded! PAYNE Furnaces again are rolling from the assembly lines in ever-increasing volume.

**PAYNE FURNACE COMPANY**  
(One of the DRESSER Industries)  
**BEVERLY HILLS, CALIFORNIA**



PAYNE "AS" GRAVITY FURNACE—A famed member of the time-tested PAYNEHEAT "line" which is complete: all gas-fired, all vented, all AGA-approved. ★ Request FREE booklet on PAYNE ZONE-CONDITIONING.

**PAYNEHEAT**  
OVER 30 YEARS OF LEADERSHIP



# FOR VITALIZED HEAT Convector HUMIDIFIER

In sizes to meet requirements of largest to smallest warm air furnaces. Now available for straight bonnets



When furnace check-ups reveal a need for humidifier replacement, or when new furnaces are indicated, install the Convector Automatic Humidifier. You not only make more money, you assure your customer more reliable and efficient humidification, even at low temperatures.

The Convector consists of one, two or four copper troughs built into a compact unit and fitted with highly absorbent patented evaporator pads, assuring free flow of moisture to exposed evaporating surfaces. This exclusive construction, together with the spacing of the troughs to permit unrestricted air flow, results in maximum evaporation.

Corrosion resisting materials. A non-back-siphoning automatic water feed valve, approved by National Plumbing Laboratory, guards against contamination of domestic water supply.

Convactor models are now available for straight bonnets in fourteen sizes with single or multiple troughs from 15 to 34 inches. The units are easily installed and easily removed for servicing.



On your new designs, hold up final specifications until you get the facts about our new, improved automatic humidifier. Send us your name so that full information can be sent to you as soon as specifications and materials are ready.

## MAID-O'-MIST INC.

3213 North Pulaski Road  
Chicago 41, Illinois



## With the Manufacturers

### Emerson-Electric Expands

The Emerson Electric Mfg. Co., St. Louis, announces its postwar expansion program which involves moving all manufacturing and office facilities from its downtown buildings, to one of St. Louis' new and modern plants, located at 8100 Florissant Ave.; following lease arrangements with the Reconstruction Finance Corporation.

This 5-million dollar plant, on approximately 40 acres, was erected under Emerson-Electric's supervision, for the development and manufacture of airplane gun turrets



during the war. Emerson-Electric had previously acquired the 162-acre tract on which it is built and completed its first plant there in 1940, for the manufacture of hermetic motors for the refrigeration and air-conditioning industry.

All Emerson-Electric operations will be consolidated at this location and the entire move is scheduled for completion in September, without serious interruption of production. An enlarged program of production of electric motors, electric fans, arc welders and several new products is under way. As a result of Emerson-Electric's extensive participation in war production, a substantial armament engineering program is being continued for the Army and Navy.

Based on floor area, the move will mean an increase in work space of about 50 percent, but production increases will range up to 200 percent, on some products; increase in employment is expected to average well over 25 percent.

### Schwab Furnace Buys Warehouse

The Schwab Furnace Company, 192 N. Second St., Milwaukee 4, manufacturers of Giltedge heating equipment and Giltedge repair parts, has purchased a new warehouse at 332 W. Florida St., Milwaukee 4, Wisconsin—a large warehouse with railroad facilities. On the Florida street side of this property there is at present a six family flat building which will be razed and when building conditions improve, the company will erect a modern office building and display floor with additional warehouse space.—L. C. Mills, President.

### Obituary

Mrs. Margaret Ward, mother of William M. Ward, of Ward Machinery Company, 564 W. Washington Blvd., Chicago, died recently following a lingering illness.

Charles H. Robinson, head of the Henson Robinson Co., sheet metal contractors of Springfield, Illinois, died recently at the age of 77.

The Henson Robinson Company was founded by the father of Charles H., in 1861, and Mr. Robinson succeeded his father as manager in 1900, following his father's death. Assisted by his two sons, the firm grew rapidly. He retired three years ago and usually spent the winter months in Florida. He died at the Ritz Hotel in St. Petersburg.



**NATIONAL OIL HEAT EXPOSITION and CONVENTION**  
**APRIL 23-27 ... Sponsored by Oil-Heat Institute of America**

# ON TO PHILADELPHIA...

**"a get-together that means all-together  
for a new day in oil heat"**

## **An OPEN LETTER to the Oil Heating Industry from the President of OHI**

Gentlemen:

The Oil Heating Industry owes a debt of gratitude to Exhibitors in the forthcoming National Oil Heat Exposition. They have made the Industry's first post-war show the greatest of all Oil Heating Expositions so successfully sponsored by Oil-Heat Institute of America.

This display of confidence in the future of our vital industry has been exhibited in the face of difficult reconversion problems. It is a stirring tribute to the calibre of the men and women in this Industry and is a happy augury as we enter an era of peace, a new day for Oil Heat, a period of great expansion.

The mission of OHI is to increase public knowledge and acceptance of Oil Heat. OHI accepts the mandate given it to make the Exposition and Annual Convention, held along with the Exposition, further the welfare of the Industry as a whole.

OHI's Annual Convention—its Retail Sales, "The Industry Looks at Itself" and Engineering Sessions, its Annual Banquet-Dance, its good-fellowship, and its many other opportunities for discussion of Oil Heating—is dedicated to this purpose: The welfare of the entire Oil Heating Industry.

So, as sponsor and host, OHI extends to all—to manufacturers of Oil Heating Equipment and Accessories, to Dealers, to Oil and other Allied Industries, and to their ladies—to the whole Industry-Family, whether Exhibitors or not, whether OHI members or not—a cordial invitation to join in this GET-TOGETHER that means ALL-TOGETHER for the Oil Heating Industry.

OHI especially invites you to bring your wives that they may enjoy a visit to historic Philadelphia and environs. There will be a special Ladies' Day program on Wednesday, April 24. The ladies will not want to miss the famous entertainers and name band at the Banquet and the dancing that follows.

We'll see you in Philadelphia, April 23-27.

Sincerely yours,

*W. A. Matheson*

President



**MORE PEOPLE HEAT WITH OIL  
LESS COST . . . . NO TOIL**



**OIL-HEAT INSTITUTE OF AMERICA**  
INCORPORATED  
**30 ROCKEFELLER PLAZA • NEW YORK 20**

## News Items . . . . .

### Keller Metals

A grand opening of Keller Metals, Inc., sheet metal shop combined with a home appliance store, was held on January 26 at 321 Twenty-first Street, Bakersfield, Calif. The Keller establishment, a large sheet metal shop in the San Joaquin Valley, features heating systems, floor furnaces, forced air furnaces, cooling systems, coolers, ducts and all types of sheet metal work. Home appliances featured are: Tappan gas ranges, Gibson electric ranges, Gibson domestic refrigerators, Gibson domestic deep freeze boxes, Whirlpool complete home laundries, Premier vacuum cleaners, Frazier furnaces, Ruud water heaters, Caraire space heaters, Suntan lamps and portable violet ray lamps.



The new shop of the Roesler Sheet Metal Co., at 5138 North 35th Street, Milwaukee. At the busiest season, Milton Roesler, president, received notice from his landlord that he had to move. Within sixty days he had bought land and had a new building erected—with adequate office and display space. The building is of concrete block construction, fireproof, and has four skylights which make the shop as light as day.

George Garrison Company, 221-223 East Washington Avenue in North Little Rock, Ark., operates one of the largest sheet metal and roofing places on the north side and does a large volume of contract work in Greater Little Rock. The firm has air conditioning, heating and ventilating departments.

### Steel Situation And Expectations

(Continued from page 96)

tional continuous mill we would have to add open hearth furnaces and perhaps a blast furnace to provide the steel for it, an additional investment of many more millions of dollars.

It is apparent, therefore, that flat-rolled steel is going to be very tight for the next two years. There is no way to get quick relief from this condition and steel users will be obliged to adjust their schedules to the availability of their major raw material. There can't be any 7 million car automobile years in the immediate future, though the industry probably could build that many cars if the necessary materials were available, and certainly they could sell them. The same thing goes for other steel-consuming industries.

While we are not getting much credit for it, the steel industry is allocating its output on a fair and impartial basis and is better equipped to do so than any government agency. I have spent a lot of time on both sides of the fence and I know. If the industry is permitted to continue on this basis without further interference by amateur Washington planners it will see that all customers entitled to steel get as much as overall limitations permit. This



Niagara 18 Gage Foot Operated Shears with 96 inch and 120 inch cutting lengths are ideal for sheet metal shops and maintenance departments requiring long sheets. Easy foot operation is the result of the design of every working part. Treadle extends the full length of the shear and is accessible at any location when cutting large sheets. Holddown is operated by self-locking eccentrics, thus enabling operator to let go of holddown handles while pressing the treadle. Ball-bearing, self-measuring, parallel back gage is standard equipment. Write for Bulletin 80-D. Niagara Machine & Tool Works, 637-697 Northland Ave., Buffalo, N. Y. District offices: Cleveland, Detroit, New York.

# INDUSTRIAL EQUIPMENT

## GOVERNMENT-OWNED SURPLUS FOR SALE

You can acquire *now* at good value, long needed production equipment—such as the heat treating furnaces shown in this advertisement. Check your operations today. Find out where additional or replaced equipment would cut your costs or speed processing. Then go over your needs with your nearest War Assets Corporation Regional Office\*. From the vast quantities of surplus industrial equipment on hand you will be able to pick, in all likelihood, exactly what you need at a very low price.

*\*In directories simply look up Reconstruction Finance Corporation. War Assets Corporation is an RFC subsidiary.*

**VETERANS OF WORLD WAR II:** To help you in purchasing surplus property from War Assets Corporation, a Veterans' unit has been established in each of our regional offices.\*

**SURPLUS HEAT-TREATING FURNACES**  
of practically every size and type for ferrous and non-ferrous applications: normalizing, annealing, tempering, hardening, case hardening, surface hardening, nitriding, cyaniding, Oil—Gas—Electric. Continuous and batch types. Any changes in these furnaces necessary to meet normal production needs will be considered in pricing this equipment.

### ROTARY HEARTH

For heat treating in production operations. Semi-automatic operation and control.

### TEMPERING FURNACE

For tempering small work in production or for the tool room or laboratory.

### INDUCTION HARDENER

The latest development in controlled surface hardening by high frequency induction. A complete heat-treating unit that can be spotted strategically in the production line.

### CHECK THIS LIST FOR THE EQUIPMENT YOU NEED

Without obligation, make sure your name is on the list for complete information on the types of industrial equipment you need. Simply mail this coupon.

- |  |   |
|--|---|
| <input type="checkbox"/> Heat-treating furnaces (for all purposes) | <input type="checkbox"/> Thermal dryers-dehydrators                         |
| <input type="checkbox"/> Gantry type cranes                        | <input type="checkbox"/> Generator sets (internal combustion engine driven) |
| <input type="checkbox"/> Extrusion Presses                         | <input type="checkbox"/> Baling presses                                     |
| <input type="checkbox"/> Electric and Pneumatic tools              | <input type="checkbox"/> Electric copper cable                              |
| <input type="checkbox"/> Centrifugal and rotary pumps              | <input type="checkbox"/> Anti-friction bearings                             |
| <input type="checkbox"/> Welding equipment                         | <input type="checkbox"/> Blended and coated abrasives                       |
| <input type="checkbox"/> Chemical equipment                        | <input type="checkbox"/> Cutting tools                                      |

NAME.....

TITLE.....

COMPANY.....

ADDRESS.....

277-3

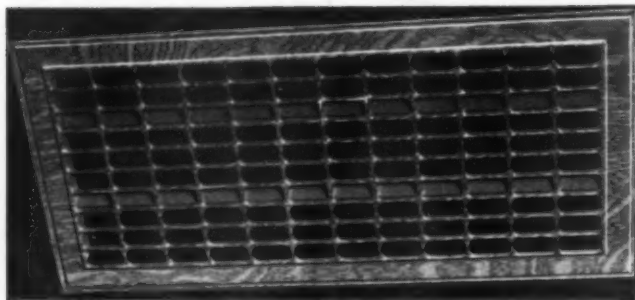
# WAR ASSETS CORPORATION

(A SUBSIDIARY OF RECONSTRUCTION FINANCE CORPORATION)

**RFC OFFICES (INCLUDING FORMER DEPARTMENT OF COMMERCE REGIONAL SURPLUS PROPERTY OFFICES) LOCATED AT:** Atlanta • Boston • Chicago • Denver • Kansas City, Mo. • New York • Philadelphia • San Francisco • Seattle • OTHER RFC SURPLUS PROPERTY OFFICES LOCATED AT: Birmingham • Charlotte • Cleveland • Dallas • Detroit • Helena • Houston • Jacksonville • Little Rock • Los Angeles • Louisville • Minneapolis • Nashville • New Orleans • Oklahoma City • Omaha • Portland, Ore. • Richmond • St. Louis • Salt Lake City • San Antonio • San Jose • Spokane • OTHER FORMER DEPARTMENT OF COMMERCE REGIONAL SURPLUS PROPERTY OFFICES LOCATED AT: Cincinnati and Fort Worth

**A DISPOSAL AGENCY DESIGNATED BY THE SURPLUS PROPERTY ADMINISTRATION**  
for Surplus Producers' and Capital Goods. Aircraft and Plants formerly handled by Reconstruction Finance Corporation and for Surplus Consumer Goods formerly handled by United States Department of Commerce.





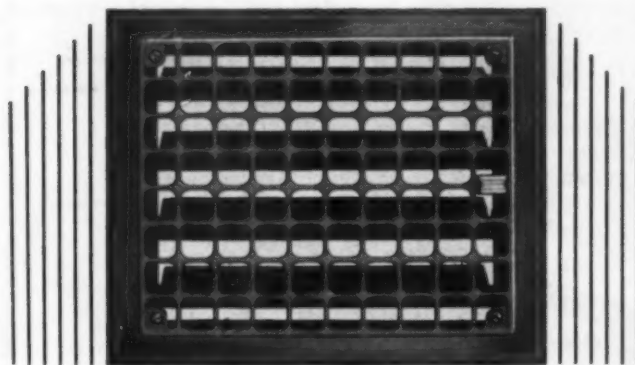
H & C RETURN AIR FACE NO. 255

## Pinch Hitting in a Tough Spot!

To meet the demand for Registers and Return Air Faces, under the circumstances existing today, places the industry in the toughest spot it has ever experienced.

In our effort to solve this problem to the greatest benefit of our customers we have reinstated our No. 200 Floor Register and 255 Return Air Face; for the reason that we can produce several times as many of these items in any given time as the Nos. 210 and 265. They are quality items in every detail—for a long period the most popular in their field. Hence we sincerely hope you will cooperate with your jobber, who is also endeavoring to get the most registers to you in the shortest possible time, by specifying either No. 200 or 210 Floor Registers, and either 255 or 265 Return Air Faces. Other items in the line remain unchanged.

If you haven't received a copy of our new Catalog No. 45, illustrating and describing our streamlined and condensed postwar line of Registers and Accessories, by all means ask your jobber or write us for a copy.



H & C NO. 200 STEEL FLOOR REGISTER



**HART & COOLEY MANUFACTURING CO.**

World's Largest Manufacturers of  
Registers, Grilles, Furnace Accessories  
HOLLAND • MICHIGAN

won't, and can't, be as much as they want, but it will be fairly done. If any attempt is made by the government to establish further controls on steel the results will be disastrous. The government does not now have the personnel to handle such a program intelligently nor can it draft them from private industry now that the war is over.

Most of our problems, as I think you will agree, would be solved rather quickly if business men were permitted to operate in the manner their common sense and experience have taught them to be for the greatest good of all concerned, unhampered by controls and restrictions, many of which have some socialistic goal in view. We shall never be free from confusion while such controls continue.

I want to make it plain that we think this country has sufficient steel capacity for its normal needs and for export. The requirements of the next few years, both domestic and export, will be highly abnormal, and export demand will be abnormal for many years to come.

The British and French steel industries will be occupied for a generation in rebuilding Europe. The German industry has been reduced to a shadow of its former proportions. Russia will need all the steel it can produce and more for its own industrialization program and for the restoration of its tremendous war-time destruction. For the next 25 years the world must come to us for its steel.

Once the great domestic shortages are made up we can comfortably satisfy our own needs and those of many other countries. In the next several years all of us must settle down to programs that are capable of achievement. The signs of returning sanity in Congress may give us all reason to hope that the bungling interference with the sensible conduct of our various businesses is finally beginning to wane and I hope we can look forward in the not far distant future to doing business again in the American way, under which any man or any company prospers in proportion to the service rendered and the unfit fall by the wayside. When that time comes I am confident we can look forward to the greatest period of prosperity.

## H&C DAMPER REGULATOR SETS



No. 40 1/4 S

**ECONOMY TYPE.** Three ways to install: 1. With lock nut but without handle (for tamper-proof setting). 2. With handle and lock nut. 3. With handle and wing nut. Nut prevents damper vibration. Handle always indicates position of damper (Patent 2,146,142). Furnished with handy snap and bearing. Complete set in carton. Made only with 1/4" bearings.

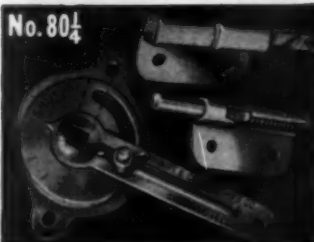
LIST PRICE.....No. 40 1/4 S.....\$0.30



No. 50 1/4

**BRACKET TYPE.** Nut holds damper securely, preventing vibration. Handle which indicates position of damper, may be left in place permanently or removed after adjustment (to prevent tampering). Snap End Bearing on 1/4" size, Solid Bearing on 3/8" size. Each set individually packaged.

LIST PRICES.....No. 50 1/4.....\$0.40  
No. 50 3/8.....\$0.60



No. 80 1/4

**DISK TYPE.** Like all H&C sets, this set is equally adaptable to splitter or regular dampers. Snap End Bearing on 1/4" size, Solid Bearing on 3/8" size. All parts are rust proofed. Complete set in carton.

LIST PRICES.....No. 80 1/4.....\$0.40  
No. 80 3/8.....\$0.60

See your jobber or write for literature and sample.

**HART & COOLEY MANUFACTURING CO.**  
HOLLAND, MICH. • PHILADELPHIA OFFICE: 1600 ARCH ST.

*Where will you stand  
when the "Seller's Market"  
comes to an end?*



Exclusive, Patented  
**IRIS SHUTTER**  
On all YORK-HEAT Equipment.



**YORK-HEAT** answers  
today's demand . . . and has the  
staying power for the long pull

The opportunists' viewpoint toward the oil burner business is, "get 'em while they're hot." Why worry about the future? YORK-HEAT doesn't subscribe to that philosophy. YORK-HEAT thinks that its distributors and dealers have an investment to protect—both in cash and good will . . . Current YORK-HEAT operations are keyed to capitalize as much of the present market as is desirable, but the over-all effort is to foster permanency and create increased public confidence in YORK-HEAT and its distributing and servicing organization. . . . If this is the kind of company you like to keep we will be glad to talk to you.

*You Are Cordially Invited:*

Distributors, Dealers, Engineers, Architects,  
Contractors, Builders, and FHA Officials

ARE INVITED TO SEE THE COMPLETE YORK-HEAT  
LINE AT THE OHI EXHIBITION—COMMERCIAL  
MUSEUM • PHILA., PA. • APRIL 23-27



◀ This respected product endorsement is now on all YORK-HEAT DOMESTIC EQUIPMENT.



**YORK-HEAT**

SUPPORTED BY NATIONAL and LOCAL ADVERTISING

Address: YORK-HEAT Division of YORK-SHIPLEY, Inc.  
YORK, PENNSYLVANIA

**IF YOU START WITH QUALITY YOU'LL STAY WITH QUALITY**



YORK-HEAT  
Boiler-Burner  
Unit



YORK-HEAT  
Winter Air-  
Conditioner



YORK-HEAT  
Automatic  
Oil-Burning  
Water Heater  
Vaporizing  
Type, Gravity  
Flow

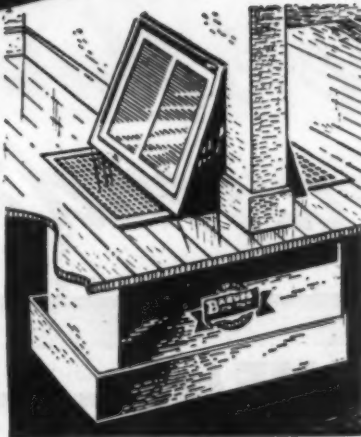
YORK-HEAT  
Conversion  
Burners





You've tried others  
**NOW TRY THE "BARNES BETTER BILT"  
 DUAL FURNACES**

This furnace is installed through wall and floor cuts. No trap door needed. Furnace is 26" deep, no pit required. The attractive non-vision grille is all you see.



Write for latest bulletin

## H. C. BARNES, INC.

Sales Office: 330 E. Fourth St.

Factory 449 W. Anaheim St.

Long Beach 2, California

## Michigan Convention

(Continued from page 99)

dence in Urbana, which was built in 1924, will now be sold and as soon as possible a new research residence will be built; \$17,500 has been set aside to build this house and, according to present plans, it will be a small, well-insulated house of modern construction and modern characteristics and will make available provisions for testing panel heating, cooling, and all the other advances of warm air heating and air conditioning.

### National Advertising Plan

Mr. Mehrings also announced that to point up all these increased association activities, it is expected that a promotional manager will be employed to prepare literature for home owners, literature for architects, literature for builders, and will be in charge of a national advertising campaign with advertisements to appear in a wide list of consumer publications. This promotional manager will also be given the task of conducting dealer training schools in salesmanship, merchandising, display, advertising, etc. All this activity is brought about, said Mr. Mehrings, because, while there are eight million warm air furnaces in operation today and only two and a half million boilers, the industry cannot sit back and expect to have the same acceptance through the coming years unless the industry makes the public fully conscious of the fact that warm air heating is the very best possible type of heating and that warm air heating with accessories provide year around comfort through air conditioning. Warm air heating, said Mr. Mehrings, has taken the

# PROFITS IN THE GROWING AIR-CONDITIONING MARKET

with  
**SNO-BREZE**  
 EVAPORATIVE COOLERS

Coolers with the features customers demand . . . made and perfected in the air conditioning test ground: the Arizona desert. A fast-selling, profitable line of coolers — all types and sizes — backed by over 30 years of manufacturing experience. Illustrated is horizontal blast blower type.

**Present supply limited.**  
**Get your order in now for summer profits.**  
**Free catalog on request.**



**Palmer**  
 Manufacturing Corp.  
 Phoenix, Arizona





**Self-plugging Cherry Blind Rivets.** The stem of this rivet remains in the shank after installation, giving the same strength characteristics as a solid rivet. Available in brass, A17ST and 56S aluminum alloys.

**Regular Hollow Cherry Blind Rivets** available in brass, steel, A17ST and 56S aluminum alloys.

**Pull-through Hollow Cherry Blind Rivets** available in brass, steel and A17ST aluminum alloy.

## Cherry Blind Rivets ARE NOW AVAILABLE IN BRASS • STEEL • ALUMINUM

Cherry Blind Rivets in brass and steel have been added as standard items to our original line of aluminum rivets.

This expansion of the Cherry Rivet line has been made in answer to demands from many industries requiring a blind rivet in either brass or steel, having the same installation advantages of aluminum alloy Cherry Blind Rivets.

These new rivets have the same design as the aluminum rivets and are applied with the same pneumatic or manually-operated guns. They are installed by one operator working from one side of the job. They have generous tolerance in hole size and material thickness, unusually broad shank expansion and high clinching action—the same characteristics which have made the aluminum Cherry Blind Rivets so successful.

The three standard types of Cherry Rivets shown above are made in several head styles and grip lengths. Standard diameters are 1/8", 5/32", 3/16", 7/32", 1/4" and 9/32". Special head styles and grip lengths are made to order.



For more details, get your copy of Manual D-45, free on request from your jobber or from the Cherry Rivet Co., Dept. A-200, 231 Winston Street, Los Angeles 13, Calif.



G-40 Pneumatic Gun



G-35 Manual Gun

The same Cherry Rivet Guns will install brass, steel or aluminum rivets. Pneumatic and hand-operated guns in several types to meet particular requirements are small, light, easy to handle.

CHERRY RIVETS, THEIR MANUFACTURE & APPLICATION ARE COVERED BY U. S. PATENTS ISSUED & PENDING

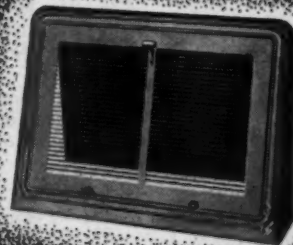
# Cherry Rivet

Company  
LOS ANGELES 13, CALIFORNIA

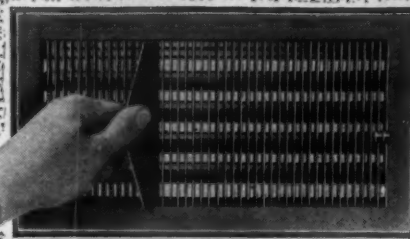


## 1946 LEADERS in GRAVITY AND AIR-CONDITIONING

No. 40  
SERIES  
U. S. GRAVITY  
BASEBOARD  
REGISTERS



Every feature that simplifies installation and assures permanent satisfaction has been incorporated in the No. 40 Series. Two-piece Gravity Baseboard registers with no loose screws. Removable centers are securely fastened with permanent engaging turn-buttons. Horizontal grille bars mask interior vision. The U.S. Metalac Finish harmonizes with most room furnishings.



No. 256 U. S. AIR-CONDITIONING  
(Multiple-Valve Four Way Flow)

These are the ideal registers for your finest air-conditioning jobs. Smoothly operated multiple-valves control up or down deflection with a minimum of air resistance. Illustration shows how left and right flows are easily reset for Lateral Air-Flow when other than Standard Setting of Grille-Bars is required. Standard Setting of Grille-Bars is 22° Half-Right — 22° Half-Left Flow.

New catalogs are now in preparation on the complete line of U.S. Gravity and Air-Conditioning Registers and Fittings. Write today to reserve your copy.

UNITED STATES REGISTER CO.  
BATTLE CREEK, MICHIGAN  
MINNEAPOLIS • KANSAS CITY • ALBANY



**The  
"TOP"  
VALUE  
in  
TIME  
SWITCHES**

**Telechron  
MOTORED**

**Paragon  
300 SERIES**  
Now \$10.75 List

Has a ten year record of success. Widely known as a precision top-quality ON and OFF time switch. Ideal for timing stokers, oil burners, pumps, valves, refrigerators, attic fans, blowers, etc.

Includes a combination of the most advanced engineering features. Telechron motored.

**PARAGON ELECTRIC COMPANY**  
719 Old Colony Building  
Chicago 3, Illinois

**Paragon Chicago**  
BUILDERS OF ELECTRICAL EQUIPMENT SINCE 1905

**OPERATING ADVANTAGES**

- 1 Self-starting synchronous operation.
- 2 Complete self-oiling lubrication by patented capillary oiling system.
- 3 Years of continuous, uninterrupted operation.
- 4 Practically instantaneous self-starting at full rated load ... and other advantages.

bulk of the residential heating construction; whether or not we can hold this public acceptance will depend upon the initiative and energy of the national association, plus state associations, plus local associations, plus the individual dealer.

#### Entertainment

The Travelers Auxiliary tendered a dinner and excellent entertainment on the concluding night of the convention. The Grand Rapids association also tendered a dinner on the first night of the convention.

#### Evaporative Cooling

(Continued from page 73)

midity went sky high. One user reported, "Why, it almost rained in my house!"

Briefly and importantly: Evaporative cooling is not perfect, nor 100 per cent foolproof. It is not as dependable as mechanical refrigerated units which literally remove the heat from the air. But, bear in mind—evaporative air cooling is an extremely inexpensive way to provide relief from heat most of the time. People quickly accustom themselves to the few faults in order to enjoy the remarkable benefits of cool air most of the time at very little more than the cost of operating an ordinary "buzz fan." No user who has ever operated a good installation for even one hot day will be willing to part with it.

This is the third of approximately five articles in a series prepared by Mr. Mar-salis, and intended to discuss every angle of this important postwar activity.



**Blo-Fan PULLS FOUL AIR UP  
AND BLOWS IT OUT**

BLO-FAN "Spot" Ventilators are installed in the *ceiling* where cooking vapors and other unwanted warm air naturally rise. Specially designed fan blades scoop up the fumes instantly. The blower section then ejects them through the duct and out of the house. Fumes and smoke do not have a chance to settle or spread.

Only Blo-Fan offers the combined advantages of both fan and blower. No other ventilator of equal size has the efficiency of the Blo-Fan.

Blo-Fans guarantee your customers cleaner rooms and furnishings — freedom from obnoxious odors.

**PRYNE & CO., INC.**  
LOS ANGELES 54, CALIFORNIA  
BRANCHES • NEW YORK • CHICAGO • HOUSTON • SAN FRANCISCO

Ask the  
Blo-Fan  
Distributor  
in Your City

WHAT'S WRONG  
WITH *Both*  
THESE PICTURES?



## THE SAME THING!

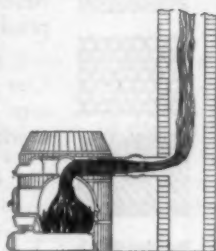
Why are both heating units inefficient, wasteful, old fashioned? Because neither is equipped with a DRAFT CONTROL. Every HAND-FIRED FURNACE in your area is a prospect for a FIELD BAROMETRIC DRAFT CONTROL. Installation is easy; profits substantial. And sales come easy with a promise of fuel savings up to 25%, longer banking, more even burning, fewer trips to the basement. Write for complete information.

### 2 SIMPLE ILLUSTRATIONS PROVE THE NEED FOR A FIELD DRAFT CONTROL



The diagram at left illustrates what takes place in the average heating plant not equipped with a FIELD DRAFT CONTROL. When the chimney draft is greater than necessary for proper draft and combustion, heat is drawn up the chimney and wasted. Fuel wastes run as high as 25%!

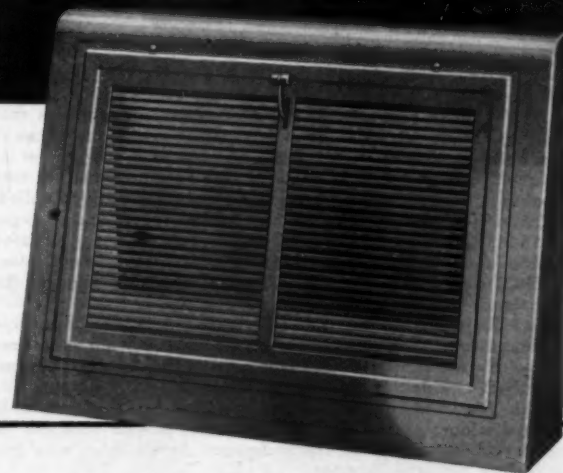
At right we picture for you the change effected when a FIELD DRAFT CONTROL is installed. The barometric pressure opens the gate, maintaining the proper draft to carry smoke up the chimney, but allowing excess draft to by-pass through the opening in the Control, the opening varying according to the pressure of the air upon the gate. Fuel savings run as high as 25%.



FIELD CONTROL DIVISION  
OF H. D. CONKEY & CO. MENDOTA, ILLINOIS

AMERICAN ARTISAN, March, 1946

## INDEPENDENT Baseboard Registers *with* *Bendable Fins*



No. 92 Two-piece, with removable grille

★ The simple artistic lines of this register express streamline design at its best and harmonize with the furnishings of the modern home. Fins are regularly set to deflect air flow slightly upward; but being easily bendable, they can be adjusted to direct air flow straight outward or downward as required. Scientific design affords large open area with minimum air resistance.

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# Something NEW!

VITROLINER

## BREECHING PIPE

(SMOKE PIPE)



VITROLINER is a new LONG LIFE breeching pipe for connecting heating plant to chimney and will give many years of trouble free service. Eliminates the expense and bother of frequent replacement. A complete line of fittings makes any hookup possible and can be easily and quickly installed. VITROLINER eliminates the fire hazard of corroded pipe. VITROLINER is made of heavy gauge steel completely coated inside and outside with porcelain to prevent corrosion. VITROLINER'S porcelain finish is attractive and adds to the beauty of any room.

**SPECIAL FEATURES:** The Telescope section is adjustable in length and is used to fill in any odd length not accommodated by standard lengths. Eliminates need for cutting pipe. Installed at chimney end of breeching pipe.

The Vitroliner damper section has a cleanout hole covered with a sliding sleeve. The cleanout hole is also used for installing a barometric or check damper. Small holes also provided for butterfly damper.

Vitroliner is easily installed and is ideal for venting dust, gas, corrosive fumes, paint spray, etc.



*protects*  
**MASONRY  
CHIMNEYS**

**VITROLINER**  
the Superior Vent Pipe

**VITROLINER CHIMNEY LINER  
CREATES MORE DRAFT**

The porcelain surface of the liner is smooth, even, and is quickly heated and cooled. In less than 5 minutes the temperature is up to efficient operating temperature, thus providing an excellent draft and complete combustion in the heating plant. When heating plant is off, the liner cools immediately, and there is no draft to draw heat from the house. The Vitroliner liner is not harmed by acid condensation present in oil or gas-fired plants.

VITROLINER LINER can be installed in existing chimneys, easily and quickly—prevents chimney deterioration caused by condensation. Inspection of thousands of brick chimneys proves that an acid resisting chimney lining is necessary to protect the brickwork.

VITROLINER CHIMNEY LINER is heavy gauge steel, double coated inside and outside with acid resisting porcelain fused into the steel at 1575° F.

VITROLINER will correct DEFECTIVE LINING, SMOKE BACK, LEAKY BRICK JOINTS, and POOR DRAFT. Can be easily installed in straight or offset chimneys. All sections are made on dies and the bell and spigot joints insure an accurate and uniform fit.

Write for further information on sizes, prices, etc.

**CONDENSATION ENGINEERING  
CORPORATION**

122 S. Michigan Ave. Chicago 3, Illinois

## Box Construction in the Press Brake

(Continued from page 89)

reversed to close over the box body, as mentioned previously.

In all of these constructions the designer or layout man must take into account the means (machines, etc.), and the practicability of their operation in each given instance, providing for such joining as will be easy to perform with the means at hand, or easily procurable. Manufacturers offer a special high box forming male die for the C-C bends (which also can be used as the "lower" die), and there are a multitude of "offset" and "gooseneck" dies offered as standard, which may fit the work at hand. A little ingenuity on the part of the work-planner will make feasible, and practical, all box-forming to be done in the press brake, unless, as stated previously, the work can be done to advantage in a box brake and we have such a brake at our disposal.

## Iowa Launches State Ass'n

(Continued from page 85)

also felt that a state association might be of some benefit in disseminating information on utilities' sales activities in the sale and installation of gas heating equipment and, through committees, to disseminate to

# PERFORATED METALS

## ARE ESSENTIAL



They are used in the processing of grain, food, chemicals, ore, coal, rubber, petroleum and many other products.



Our range of sizes is great and we aim to meet the most exacting demands.



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**Harrington & King**  
PERFORATING CO.

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# Constructed for LONG LIFE!



## THE SKUTTLE SERIES 300A AUTOMATIC HUMIDIFIER

● Here is an automatic humidifier that is designed and built to give longer service to the home owner. Its tank and valve assembly is made of pure copper and brass while the evaporating pan is vitreous enameled.

Just compare the features of this Skuttle 300A Humidifier with all other makes and you'll agree with thousands of furnace dealers and manufacturers that here is a humidifier that operates without continual servicing.

● **PROMPT SHIPMENT** is assured.  
Write us today for prices.

## FEATURES

- 1 Adjustable collar for use on all types of bonnets.
- 2 Large inspection door for easy removal of evaporating pan.
- 3 Evaporating pan is completely inside furnace.
- 4 Rear support is adjustable and tight fitting to prevent leakage.
- 5 Anti-siphoning valve, standard equipment, at no extra cost.

*Skuttle Mfg. Co.*

517 E. LARNED

DETROIT 26, MICH.



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## YOU, TOO, CAN MEET THE METAL SHORTAGE

Tested, Approved and Safe A.R.A. Sheets—for non-metal DUCT WORK in the Heating, Ventilating and Air Conditioning field.

Every day sees more and more of the alert Sheet Metal Contractors putting in jobs with A.R.A. Sheets where the work heretofore was done with sheet metal. You, too, will find it easy and inexpensive to use A.R.A. Sheets. With the sheet metal situation becoming more critical and with the metal stock piles in dealers' shops getting smaller every day, it should be comforting and profitable to have available these popular A.R.A. Sheets for immediate use.

Asbestos-clad A.R.A. Sheets are tough yet flexible (Mullen-tested over 200 lbs. per sq. in.)—rigid but not brittle—fire-proofed and water-proofed—are light in weight, will not dry out, crack, crumble, or chip, have a high insulating value (K .45 B.T.U.) and good sound deadening properties. They are easy to handle, will bend without breaking and can be rolled, punched, scored and die cut, still retaining their rigidity and strength.

Write for our 16-page booklet No. 89-A. Gladly sent on request.

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**Popular Price  
Practical Design  
Economical Operation**



Dealers: Join the National Association's Campaign to promote true indoor comfort through conditioned warm air.

**UNION MANUFACTURING CO., INC.**  
BOYERTOWN, PA.

Iowa contractors the latest rulings on regulations affecting the industry—both state and federal regulations.

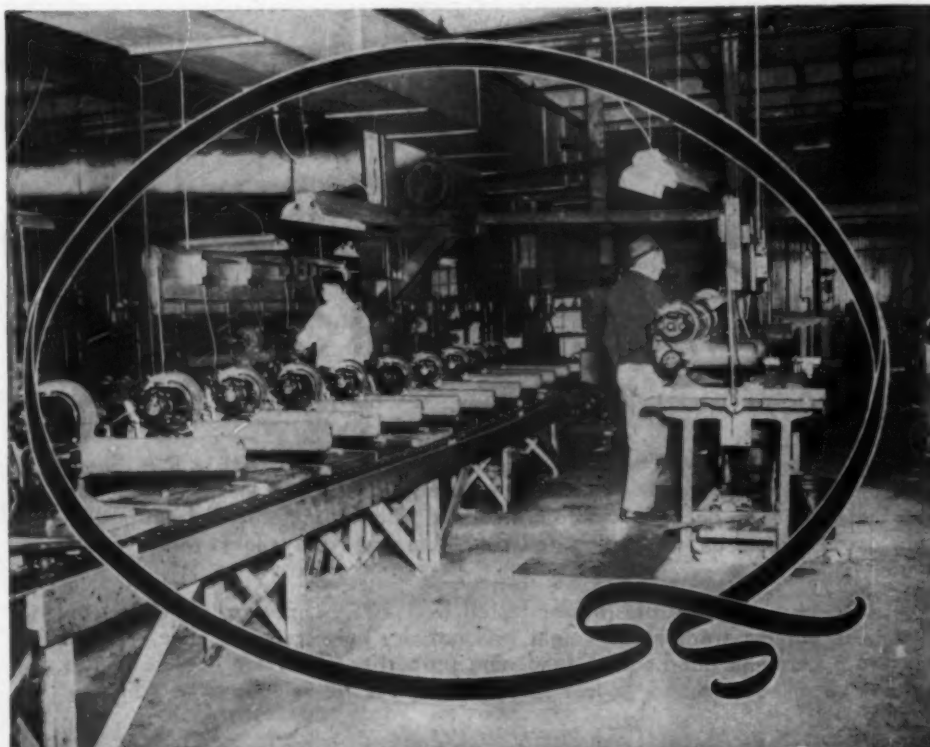
It was brought out at the meeting that the original Iowa state association which disbanded about the time of the NRA had been a useful organization and had been instrumental in helping contractors with problems typical of the industry. The original Iowa association was in existence for approximately twenty-five years and held several annual conventions and also a few short courses in heating instruction at the State College in Ames. At the peak of activities there were more than one hundred contractor members in the old Iowa association. It was also brought out at the meeting that there are in existence a number of local associations throughout the state and it was felt that the value of these local associations might be enhanced if a state association could be put into operation to correlate the activities of the local group.

### Partnership or Corporation

*(Continued from page 62)*

a period of rising tax rates, since the entire year's income would be taxed at the lower rates prevailing for the calendar year in which his fiscal year began. This advantage has been eliminated by succeeding revenue acts.

But there are considerations other than taxes which may make a fiscal year more preferable than a calen-



## CAREFUL FACTORY INSPECTION *Saves You Money*

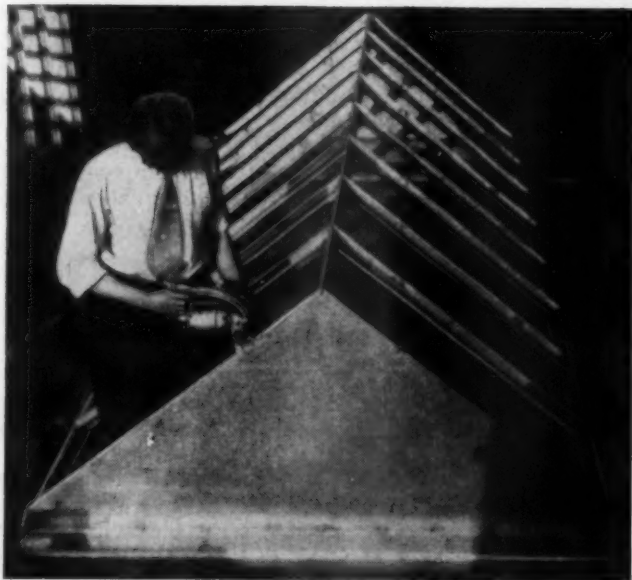
As every Nu-Way oil burner comes off the assembly line, expert checkers inspect all vital operating parts. Careful inspection guarantees to the dealer less after-sale servicing and to the customer more satisfaction.

When you handle Nu-Way oil burners, you can be assured of the best in workmanship and materials and the earliest possible delivery dates.

*The Nu-Way Corporation*  
Quality Oil Burners Since 1921, Rock Island, Illinois



# UNISHEAR



**pays for itself  
in just 2 days**

A booming Chicago plant wanted to know if he could make 9 skylights in a hurry . . . 7 big ones and 2 smaller. Emil Genc, prop. of Round Oak Sales & Service thought fast, said, "Yes". He remembered reading an ad for the "Mighty Midget" Stanley Unishear. On the way to the job he bought one. Rated to cut 18 gauge galvanized iron, Mr. Genc said the UNISHEAR handled the 20 gauge material easily. The job was finished on schedule and Mr. Genc made a nice profit . . . commenting, "That Unishear paid for itself in two days".

Which isn't so unusual when you see how the UNISHEAR works. Handles easier than hand snips anywhere . . . straight cuts, curves, angles; inside or outside; curved or flat surfaces; tight spots and close to shoulders and beads on formed up pieces . . . up to 15' per minute with hairline accuracy.

Write for full information about this and other portable and stationary models. Stanley Electric Tools, 131 Elm St., New Britain, Conn.

STANLEY

**STANLEY ELECTRIC TOOLS**

**RETURNED VETERANS AND FAMILIES  
WANT ECONOMICAL SMALL HOME  
HEATING . . . WITH**

*Automatic Temperature  
Controls . . .*



**Serve This Great and Profitable New Market  
By Selling Vaporizing Oil Burner Appliances  
Equipped with Dependable "A-P" Constant  
Level Oil Controls . . . .**

**PERFORM** a genuine service for the great army of returning service men eager to establish and enjoy modest, comfortable homes for their families. Tell them about the convenience, economy, and all-around efficiency of heating with vaporizing oil burner space heaters, floor furnaces, and basement furnaces equipped with a dependable "A-P" Constant Level Oil Control that assures uniform home heating automatically. You will be building customer good-will as well as profitable sales volume!

**Leading** makes of Vaporizing Oil Burner Appliances equip their units with the dependable, fuel-saving "A-P" Constant Level Oil Control. It is to your immediate and profitable advantage to feature this efficient equipment that affords smaller type homes such genuine heating comfort and economy.

**WRITE** for new illustrated Bulletin describing the "A-P" Constant Level Oil Control with "Magic Pilot."

Illustrated is the "A-P" Model 240 WYP Constant Level Oil Control for water heaters—equipped with "Magic Pilot." The "Magic Pilot" also is available on other model controls for vaporizing burner floor furnaces and furnaces, where a low pilot flame must be maintained indefinitely.



**AUTOMATIC PRODUCTS COMPANY**

2452 North 32nd Street, Milwaukee 10, Wisconsin



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**A-P CONTROLS ARE DESIGNED TO ELIMINATE SERVICING!**

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FIND OUT about the extra values offered in Gehl Stokers, and the fine program of dealer cooperation. WRITE today for literature and details.

Domestic and industrial models now available.



**GEHL BROS.  
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Established 1867

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A GEHL WINS FRIENDS WHEREVER IT GOES

dar year. Almost all business has what is commonly known as a "natural business year," that is, a year ending at the low ebb of the annual business. At that time inventories are usually at their minimum, and taking an inventory will interfere least with normal business activity. For example, if department stores were to use a calendar year basis, they would be compelled to close their books right after the end of the Christmas rush. Waiting until the end of January makes the task much easier.

Another advantage of a fiscal year is that it permits your accountant to give more attention to your return than he would be able to do if the year ended on December 31, in the midst of the tax rush.

## Air Diffusing and Ventilating System

(Continued from page 70)

Control of ventilating and air conditioning within this space is by means of a complete system of pneumatic controls. Outdoor, return, and exhaust air dampers are motorized and controlled by electric pneumatic switches interconnected with the holding coils on the fan motor starters and modulated by static pressure and limit control instruments.

Other production processes outside of this air conditioned space are served by numerous exhaust ventilating systems for removal of acid fumes from the etching process, heat, glass dust from cutoff saws, etc. A total of approximately 46,200 cfm. capacity air handling equipment and ventilating systems are installed for the entire process.

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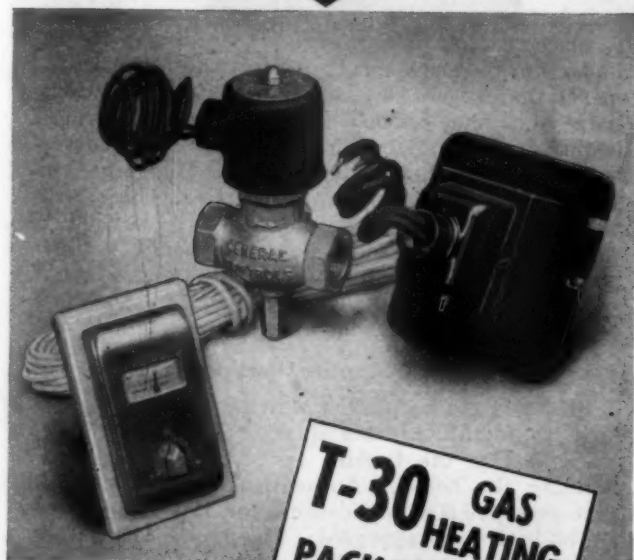
Easy to understand . . . accurate . . . comprehensive . . . these are the features of this third edition of Samuel R. Lewis' well-known AIR CONDITIONING FOR COMFORT. More than 70% of the text in this third edition is entirely new.

Fundamentals are fully and clearly covered. Correct procedure in designing complete systems for both residences and large buildings is explained step by step. In addition, considerable original data on such subjects as standards, noise control, measurements, and fire protection codes has been included.

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**For**

### NATURAL and MANUFACTURED GAS

Finely engineered, field proved packaged sets for compact inventory and convenient installation. Ideally adaptable to gas-fired boilers, floor furnaces, conversion burners and warm air furnaces.

Set includes type K-3B two-wire gas valve, T-70 Metrotherm, transformer and 30 feet of cable.

### ADAPTABLE TO L. P. GASES

100% shut-off is assured by the additional installation of an MR-2 electro magnetic thermovalve with 26-R Series pilot burner.

Write for Catalog 52B and Manual FI-101.

**GENERAL CONTROLS**  
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FACTORY BRANCHES: PHILADELPHIA • ATLANTA • BOSTON • CHICAGO • DALLAS  
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**Black & Decker  
1/2" Standard  
Electric Drill  
\$53.00**

B & D HOLE SAWS supplied at slight extra cost.

## This 1/2" Drill Cuts 3 1/2" Holes!

The Black & Decker 1/2" Standard Drill is a great tool for fabrication and installation—on all types of heating, piping and air conditioning work. Has a capacity up to 1/2" diameter in steel, double in hardwood. Drives Black & Decker Hole Saws for cutting clean, round holes up to 3 1/2" diameter in cast iron, sheet metal, porcelain, alloys or any material a hacksaw will cut.

The same Drill drives wire wheel brushes and wheels for occasional light cleaning, grinding and sharpening jobs—and can be slipped into a Black & Decker Drill Stand (\$22.00) for heavy duty drill press work.

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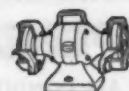
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PORTABLE ELECTRIC TOOLS



ELECTRIC DRILLS



ELECTRIC SANDERS



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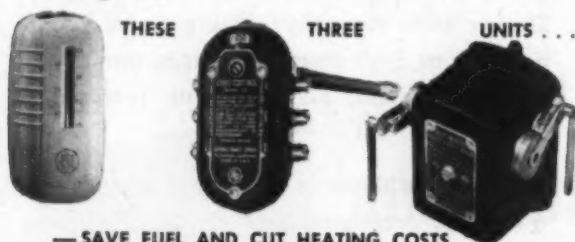
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### *Automatic Heat Regulator Sets*

WIN the thanks and lasting good-will of your hand-fired furnace customers by saving them extra steps and work as well as fuel. Not only that, but you assure evenly controlled home heating that prevents family colds and illnesses when you install this efficient "A-P" Automatic Heat Regulator Set that STOPS chance-taking furnace firing waste.



— SAVE FUEL AND CUT HEATING COSTS  
ARE QUICKLY AND EASILY INSTALLED LIKE THIS:



Attach "A-P" Thermostat to inside wall, 4 feet above floor. It "floats" the fire, and convenient, easy-to-read setting controls room temperature within 1". Actuates damper control. Easy to install. Ivory-tone cover contains accurate thermometer.



Now place an "A-P" Limit Control on the furnace burner, preventing furnace heat from overshooting room thermostat setting. Keep Limit Control adjusted to outside weather for satisfactory venting of fire.



Finally install the "A-P" Damper Regulator, and connect to Room Thermostat and Limit Control. Unit is treated to avoid rusting from summer basement dampness.

**COMPLETE INSTALLATION KIT**  
Consists of: Pulleys, Screws, Conductor Cables, Staples, Chain and Transformer.

**SALES AIDS** — Display Cards, Colored Presentation Books, Consumer Folders, Newspaper Mats, Furnished You At Your Request.

**PRODUCTION AND DELIVERIES**  
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2470-C No. Thirty-Second Street, Milwaukee 10, Wisconsin



## **DEPENDABLE Controls**

FOR HEATING • AIR CONDITIONING • REFRIGERATION

## **Kruckman—Heating Equipment Situation**

(Continued from page 57)

ratings be speeded, according to the special circumstances, by AA, BB, or CC priorities. It is obvious that the effort to avoid controls will in reality complicate the whole program by piling one kind of evidence of control on another.

It is fortunate that present plans have been devised to place the administration of the proposed Direction under PR-33 in the hands of Morgan Johnston. This means that he will channel the distribution of the furnaces and other finished heating equipment from the manufacturer and the distributor to the builder who holds the HH rating from the Federal Housing Agency. This obviously means that one directing head will be able to speedily coordinate the whole transaction from the stage of fabricated material until the finished product is headed to the hands of the contractor who will install it in the structure intended for the veteran or for whomever the housing unit is designed.

### **100,000 Applications on Hand**

PR-33 is the regulation which is designed particularly to facilitate the delivery of materials and installations to the builder or to the veteran who is building the house. Authentic information here is that over 100,000 applications for HH ratings under PR-33 have been approved. The guesses in regard to the number of housing units which will be constructed this year range from 250,000 to 1,000,000. The most immediate program you hear mentioned is based on

Write Today  
for Details on

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*Now Available*

➔ Investigate the advantages of HESS Equipment — backed by 73 years of Heating and Ventilating Experience

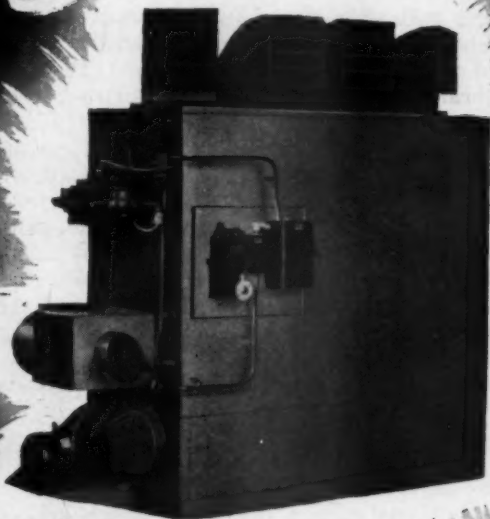
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# Save Monthly Operating Costs

## WITH THE NEW AIRTHERM DIRECT FIRED WARM AIR HEATER



High efficiency and low operating cost are a major consideration in any heating application. Low internal resistance through the Airt therm Warm Air Heater requires a minimum of motor horsepower, per B.T.U. output, resulting in savings in power costs to the user.

Investigate the highly efficient Airt therm for meeting your factory heating requirements. Write for bulletin 801 which will be sent on request.

**AIR THERM**  
MANUFACTURING COMPANY

706 S. Spring Ave., St. Louis 10, Mo.

# CUT COSTS

DO A BETTER JOB WITH

## FOLLANSBEE

SEAMLESS  
TERNE ROLL  
ROOFING

The job moves faster when you eliminate cross-seams—and there's less chance for roofing failures. Savings in time, plus savings in the solder required, soon reach substantial amounts. As many sheet metal men know, Follansbee Seamless Terne Roll Roofing is convenient to handle, easy to cut to desired lengths for any style of roof, and for gutters and valleys.

50 FOOT SEAMLESS ROLLS  
STOCKED BY LEADING JOBBERS

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COLD ROLLED STRIP • ELECTRICAL SHEETS & STRIP • CLAD METALS  
POLISHED BLUE SHEETS • SEAMLESS TERNE ROLL ROOFING



# MASTER TEMPERATURE CONTROLS

For over a quarter of a century, "White" has been a distinguished name in the heating industry. Master Temperature Controls are famous for their greater comfort, more efficient service and longer life . . . factors which insure complete satisfaction for your customers and growing sales for you.

We are in production on the "old reliable" products, such as those illustrated. We expect to make definite announcements of several new products in the near future.

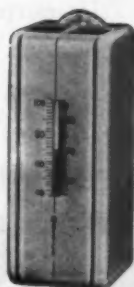


B-22 Motor



D-22A  
Regulator Switch

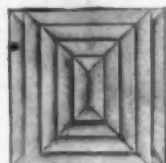
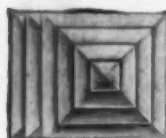
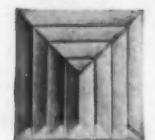
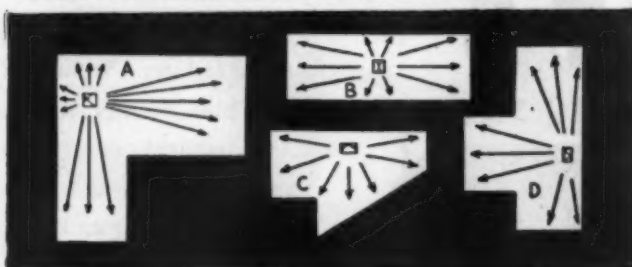
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WHITE . . .  
it's not only a  
name; it's a  
guarantee.



A-23  
Plain Thermostat

**WHITE MANUFACTURING CO.**  
2368 University Ave., St. Paul, Minn.

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### AGITAIR TYPE R AIR DIFFUSERS

#### FOR DIFFUSION PATTERN CONTROL

Perfect diffusion of air into all parts of odd-shaped rooms is available only with Agitair Type R Air Diffusers. And you don't need to mount type R in the center of the space.

That's because Agitair Type R, assembled from standard parts to any pattern desired, can divide the incoming air into one, two, three, or four streams, and diffuse these streams into the room in exact proportion to the areas they serve. Temperature differential and duct velocity are dissipated rapidly, noiselessly, draftlessly. Get the facts from Air Devices, Inc.

AIR DEVICES, INC. 17 EAST 42nd STREET NEW YORK 17, N. Y.

21-F

350,000 prefabricated houses and 600,000 regular structures. In Government they have the idea that approximately 75 per cent of these housing units will not be heated with furnaces.

### Rationing by Permit

The Second War Powers Act, which virtually has been renewed for another year and half by Congress, assures Administrator Wyatt that he can control by rationing materials. Only essential construction may be carried on. Permits will be required for all building and construction. Whether or not L-41 is actually and literally resumed, the essence of Order L-41 will come into effect. Wyatt is expected to announce his program before the end of March regardless of Congress. He will present in detail a permit system, based on the rationing power, which will strictly control all construction. It is understood industrial construction in the second quarter will be cut back to 90 percent of the first quarter. During the third quarter the cutback is to be reduced to 70 per cent of the first quarter, and in the fourth quarter the cutback is to be reduced to 35 per cent of the first quarter. The same percentages will control commercial construction.

The object, patently, is to channel most of the materials to homes and housing units. The veterans' housing and other low-cost houses will have the right-of-way. There is to be no prohibition against other residential construction or repair of residences, but those who undertake the non-priority construction will have to gamble and scramble for their materials. The word is that construction substantially under way may be continued with permits, even if it is not in the low-cost brackets. Apartment houses which rent units at less than \$80 per month are listed for priorities.



## ATH-A-NOR FURNACES AND PARTS

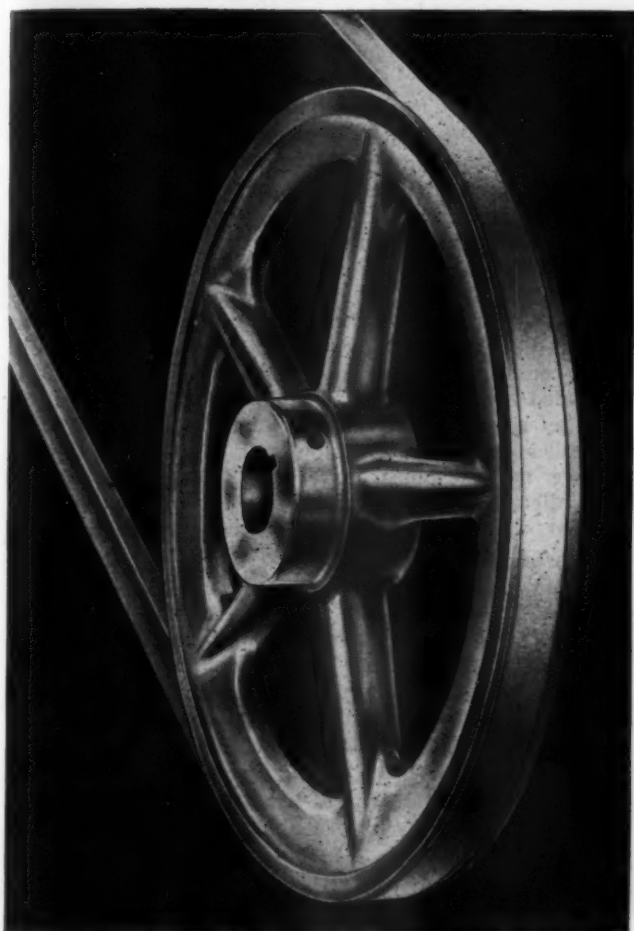
For more than 50 years the name Ath-A-Nor has meant top quality and best performance in furnaces. Economy and efficiency are the best-known qualities of the Ath-A-Nor furnace and of Ath-A-Nor furnace repair parts. Buy and install Ath-A-Nor for best results and greatest fuel economy!

## MAY-FIEBEGGER COMPANY

MANUFACTURERS OF QUALITY HEATING EQUIPMENT FOR  
OVER 50 YEARS

NEWARK, OHIO





## MAUREY V-PULLEYS

**provide a L-O-N-G step toward  
TROUBLE FREE Performance**

Our long experience in designing and manufacturing V-Pulleys, our complete understanding of their uses, and the finest materials—all are combined in making Maurey V-Pulleys the very best Pulley installations for Refrigeration and Air Conditioning systems as well as for Fans and Blowers.

For unfailing, continuous operation be sure to specify Maurey V-Pulleys.

**MAUREY  
MANUFACTURING CORP.**

2915 South Wabash Avenue  
CHICAGO 16, ILLINOIS



**That's Right!**  
**PREMIER is shipping**  
**"ADD-ON" Blowers**

FULL  
RANGE  
OF  
SIZES



Yes, you can make those profitable blower installations now—and give your customers the best blower ever offered at a competitive price.

These PREMIER "Add-on" Blowers were designed to help good Independent Furnace Dealers like yourself, to get the volume business that's ready and waiting for you. Here are blowers "quiet as a hushed whisper." They're made like the big, commercial jobs. Exclusive cast iron base and cast iron ends, for extra rigidity and smooth operation. Easy to install — no need to bolt them down. Full 1" ground and polished shaft. Machined, cast iron pulleys. Rubber mounted motor with self-oiling bearing.

Furnished complete with cabinet, or as assembly only, so you can build your own cabinet on the job. And prices are amazingly moderate. Write for the facts!

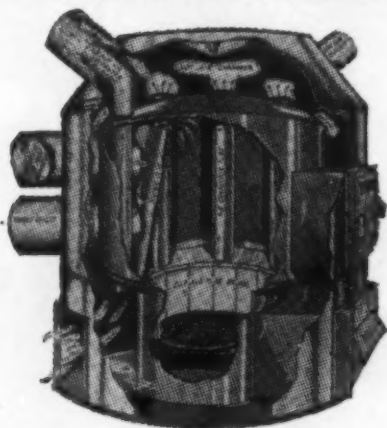
**PREMIER FURNACE CO.**  
Dowagiac, Michigan

# PREMIER

YEAR 'ROUND  
HEATING AND AIR  
CONDITIONING

Write  
for Blower  
Bulletin!

## Radiant **TUBERATOR** Heater



PAT. APPLIED FOR

**RADIANT HEATED AIR CONDUCTOR TUBES  
AUTOMATIC FLUE DRAFT CARBURETOR  
OPEN DOME FIRE CHAMBER, ALL STEEL**

MANUFACTURED BY  
**WHEELING FURNACE CORP.**  
MARTINS FERRY, OHIO

SEE JANUARY ISSUE

IMMEDIATE DELIVERY

DEALERS WANTED

WRITE FOR INFORMATION



**SHEET METAL MEN  
should know more  
about this machine**



**KALAMAZOO**  
Metal Cutting Band Saw

**SAVES  
EVERY  
DAY  
in your  
SHOP**

Why let high priced labor cut by hand—lengths of angle iron—rods—tubes—bars, etc.—when this low priced machine does these jobs with amazing Speed and Accuracy? Pays for itself in Labor Saving and Steps up Production. Scores of shops say "just what we've always wanted."

Write for bulletin.

**MACHINE TOOL DIVISION**

Kalamazoo Tank & Silo Co.

Kalamazoo 18, Michigan

Hotels will be scheduled for construction material installations when demonstrated necessary. If proven that the erection of an office building will make jobs, priorities will be issued.

Factories which make building materials or installations will be permitted to obtain restricted materials to build new plant structures, and other factory structures will be permitted if they are used to make supplies that are very scarce. It is generally understood that industrial and commercial construction must be kept within \$15,000, unless a highly pressing need can be demonstrated. Emphasis will be on repairs and replacements. Approval will have to come from a local committee, the general character of which, it is assumed will be political, and wire pulling usually will get results. Road building and dredging and other so-called heavy construction will be permitted when it does not use house materials. It is almost certain that allocation will be resumed for the distribution of lumber, that essential industrial users get some.

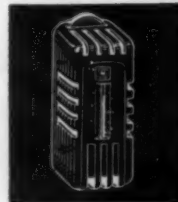
Subsidies are still a strong possibility. The President has asked Congress to provide \$253,727,000 to build 100,000 temporary homes for veterans. Price ceilings on building materials and installations have made so much headway in Washington thought that OPA has set up a special housing unit. The paramount thought to bear in mind is that the bulk of all available building materials will go into low-cost housing under the HH rating.

The fundamental critical list at present is: lumber, cast iron soil pipe, common and face brick, clay sewer pipe, gray iron castings, malleable iron castings, and cast iron radiation. Wherever installations increase production, special agreements will be encouraged to

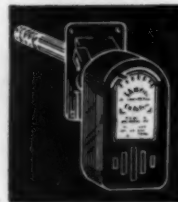
*on your*  
**GAS** *or* **OIL**  
**CONVERSION JOBS**

*use*

**Sampsel**



Sampsel S-20 two wire  
Thermostat.



Sampsel S-48 Limit  
Control.

### **THERMOSTATS and LIMIT CONTROLS**

Rugged, dependable Sampsel Thermostats and Limit Controls are ideally suited to gas conversion installations. They are available now, easy to install, profitable to sell.

### **IMMEDIATE DELIVERY**

Send for complete information on these and other Sampsel Controls.

**SAMPSEL TIME CONTROL, Inc.**  
SPRING VALLEY, ILLINOIS

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Licensed Under Widman Patent

THE PERFECT HAMMER for double seaming of sheet metal—drawing rivets through sheet metal or corrugated roofing. For general use in machine, body, fender and tire shops.



### Morey Hammers REALLY make a Hit

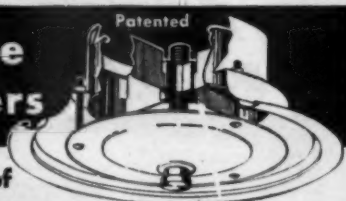
The patented design of MOREY HAMMERS combines necessary weight without bulk or clumsiness to give perfect balance.

Distributors and Jobbers Wanted

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For better mixing of room and supply air, more uniform temperature throughout the occupied zone and noiseless air diffusion.

Any desired condition at your fingertips

**Kno-Draft Type K  
Adjustable Air Diffuser  
with Type D volume damper**

Whether they are used in heating, cooling, ventilating or combined systems, Kno-Draft Adjustable Air Diffusers can be adjusted quickly and accurately for system balancing and individual or seasonal requirements. By simply turning the air adjustment screws (easily accessible from under the unit) the inner cone may be raised or lowered to secure any angle of air direction required. The built-in volume damper (regulated by the hand-turning knob) varies the air outlet aperture uniformly without affecting the outlet velocity or diffusion pattern.

Free handbook: contains clear sketches, charts, dimension prints and instructive text that simplify the selection and installation of air diffusers. Please write Dept. J-13 for your copy, using your company letterhead.

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AIR DIFFUSION      AIR PURIFICATION      AIR RECOVERY  
114 East 32nd Street      New York 16, N. Y.



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## CARA-FLUX No. 400

The Solution for Your Soldering Problems

- Cara-Flux No. 400 assures a firm, dependable bond for soldering stainless steel and other hard metals. Cara-Flux etches hard metals quickly; does not crawl or creep; does not spray or splatter; and does not form pockets on stainless steel, nickel, chrome and similar metals.

- Cara-Flux is safe to use in large-scale production as it does not harm skin of workers, has no injurious fumes.

- Cara-Flux No. 400 is a Towner formula which has solved many difficult problems of a long list of large manufacturers. With information as to your requirements, our engineering service will gladly make recommendations and will send you adequate demonstration samples.

- Send for your sample today.

**CARAJON CHEMICAL COMPANY, INC.**

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For Complete Safety ....

**G-A  
FURNACE  
SENTRY**

Approved by Anthracite Industries Laboratory

Gleason-Avery's popular No. 130 Furnace Sentry provides safe, accurately controlled heat for hand-fired heating systems. Complete with smartly finished thermostat, damper motor and accessories—ready to install quickly and easily.

G-A Safe Return Motor eliminates fire hazard—in case of current failure, draft damper closes automatically and check opens. Exclusive G-A Straight Line Control does away with troublesome sprockets and rotating arms, saves time-wasting service calls.

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A RELIABLE NAME IN TEMPERATURE CONTROLS





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DESIGNED for Evaporative Coolers, small Cooling Towers, Stock Feeders and many other uses. Morey Float Valves are simple in operation, easy to clean. Made of corrosion-resistant materials.  $\frac{3}{4}$ " pipe connection. Usual trade discounts. Send for sample. Distributors and Jobbers Wanted.

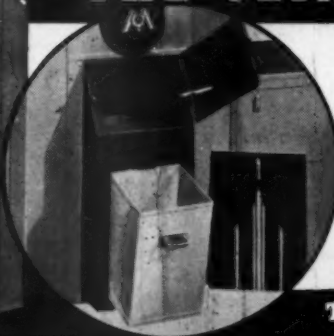
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PRICE  
**\$2.00**

## Majestic HEAVY DUTY STEEL Stoker Furnace



## THE FURNACE THAT ENDS THE CLINKER PROBLEM



- Specially designed and built for stoker firing
- Suited for any make or type of domestic stoker
- Built-in compartment for convenient dust- and gas-free clinker removal
- Interchangeable panels permit placing stoker on either side
- Rugged, durable, boiler plate steel construction
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- A high quality, efficient heating plant at an attractive price.
- Backed by Majestic's 38 years of heating experience!

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FORCED AIR  
REGISTERS and GRILLES  
Priced with the Lowest

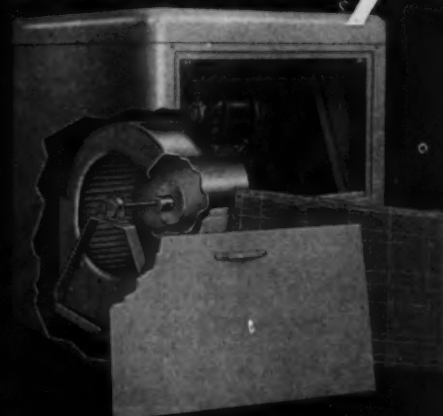
Pre-war quality . . . Adjustable Fins . . . Positive shutter operation . . . Reasonably prompt shipments.

WE ALSO MANUFACTURE A  
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GRAVITY  
REGISTERS AND GRILLES

Prompt attention to all inquiries.

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## BLOWER UNITS and ASSEMBLIES

*Maintain their Pre-war Quality Construction*

And that is why you are sure of superior performance, economy of operation, and few, if any, service worries.

THE  
**Brundage**  
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BLOWER SPECIALISTS  
*Since 1919*  
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**Have You These  
COST CUTTERS  
in Your  
Plant?**



### MACHINES THAT NEED NO POWER

The Famco Squaring Shear (above) is an all 'round saver. Requires small investment . . . no electric power . . . it's simple to install . . . has easy gauge settings. This Famco Shear will cut up to 18 gauge mild steel. Made in five sizes: 22", 30", 36", 42" and 52" cutting widths (three largest have "hold down" attachment). All models are equipped with front, back and side gauges. Write today for descriptive folder.



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**famco** COST CUTTING  
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SQUARING SHEARS • ARBOR PRESSES • FOOT PRESSES



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## COMBINATION MACHINES

BARTH offers a wide range of Combination Machines for burring, edging, wiring, turning, and flanging. Three sizes are furnished with roll diameters 1½", 2½", and 3¾". Capacity to 18 gauge.

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. . . to cash-in on the huge backlog of stoker sales! You increase your profits through faster sales, make fewer service calls by selling ECON-O-COL's complete line of precision-built, highest quality stokers. And a hard-hitting promotional program backs you up every step of the way! Details of our exclusive dealer franchise, now available in several areas, await your inquiry. Write or wire us today.



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*The "Stronghearted" Stokers*

BUILT BY COTTA TRANSMISSION  
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## BOOST PROFITS

*Save* **VITAL FUEL**

You can earn extra profits with a Grand Rapids Furnace Cleaner — and help save precious fuels, now more scarce than ever. Merchandising through your service department is the answer, for it not only enables you to sell new equipment while you clean but also keeps your customers' furnaces in the tip-top repair so essential to economical operation.

Built to give you dependable, efficient service for many years, the Grand Rapids Furnace Cleaner does a complete, thorough cleaning job, removing all dirt and dust from furnaces, boilers, chimneys, stokers, oil burners and heaters — even the entire basement if desired. It's sudden death to nasty "plug up" conditions. Write today for full information.



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*MODEL OF The Doyle VAC-11*

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## WHITNEY-JENSEN PRODUCTS

30 YEARS EXPERIENCE

NO. 7 — 7 1/2 — 8 ROLLER BEARING

### HAND PUNCHES

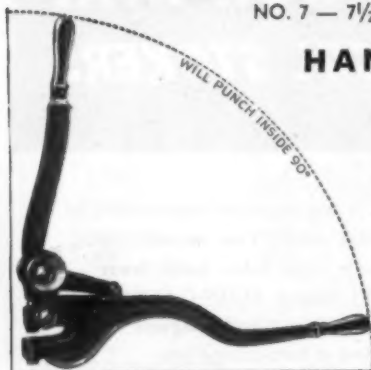
CAPACITIES

1/4" THRU 1/8"-3/16"-1/4"

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PUNCHES and DIES  
AVAILABLE

3/32" THRU 1/2" BY 1/64"  
VAR.



NO. 10—11—12  
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CAPACITY—ALL SIZES—3/8" THRU 1/4"

PUNCHES and DIES AVAILABLE  
3/32" THRU 1/2" BY 1/64" VARIATION

LIGHT WEIGHT  
DEPENDABLE  
Write for  
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YOUR CUSTOMERS WANT  
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**THERMO-D RIP**  
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*Always Provide It!*

Thermo-Drip Humidifiers moisten air as it is heated, in direct proportion to temperature. Thermo-Drip Humidifiers regulate water feed and control the amount of evaporation. Thermo-Drip Humidifiers are manufactured from the finest materials and are designed and engineered to simplify your installation and insure complete satisfaction to your customers. Get all the facts on Thermo-Drip Humidifiers now. Install them on any type or make of furnace for correctly balanced humidification and healthful comfort. Write us today.

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CEDAR FALLS • IOWA

FOR EVERY TYPE OR MAKE OF WARM AIR FURNACE

THERE'S A THERMO-D RIP HUMIDIFIER

Farmers, ranchers, livestock men have been told they must force production by every means that can be marshalled for at least the next sixteen months, possibly longer than the end of 1947. Somewhere between 25 and 40 per cent of all our food and fibers is to be exported for the relief of the rest of the world. Most of it logically will go to Europe, presumably to save millions of our friends and our foes. The Russians are now the only people entirely free of rationing. The British are reported to have enough but to be poised on the hairfine line beyond which is scarcity. Apparently it is assumed our global relief program will check the spread of Communism and may restore some semblance of civilized sanity and economic equilibrium in the Western world.

The forced production inevitably will create the need for great supplies of many new things in the farm plant and among the 6,000,000 farm families, also

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Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

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### MARSHALLTOWN THROATLESS SHEARS

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**CUT ANY SHAPE**  
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Here's just the Shear that offers every feature you want. It does hundreds of odd shearing jobs better and faster—yet is an inexpensive hand operated tool. No matter what type of cutting—either irregular shapes or straight splitting—from ANY size sheet, you'll quickly find that the Marshalltown Throatless Shear is the most profitable tool in the shop.



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Get Special Shear Bulletin today. Gives details of sizes from 18 gauge to one-half inch capacity.

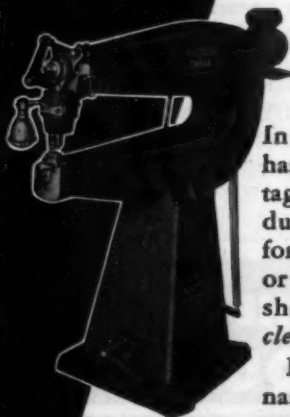
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# Libert Hi-Speed SHEAR

CIRCLE CUTTING  
ATTACHMENT  
Included as  
STANDARD EQUIPMENT  
with this Machine



MODEL  
1236  
36-in. throat  
12-gauge capacity.

WRITE FOR  
BULLETIN

- SIMPLIFIES Maintenance
- SPEEDS Production
- SAVES Manpower

In wartime work, the *Libert* has amply proved its advantages by turning out top production—shearing flat or formed sheet metal, internal or external, plain or irregular shapes *rapidly, accurately, cleanly!*

Equally effective in maintenance work, *Libert* is cutting costs to rock bottom. Edges are smooth, need no finishing. Unskilled operators produce accurate work at once.

Sizes up to  
60-in. throat, 10-gauge capacity.

**LIBERT MACHINE COMPANY**  
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• Your requirements for complete warm air heating needs—including Steel furnaces—*repair parts for all makes of furnaces and boilers.* Fittings, registers, blowers, asbestos paper, electric controls, etc. Orders will be filled as rapidly as present conditions will permit.

NEW REPAIR PARTS CATALOG  
Just off the Press—Send for your copy today.

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# IT SAWS! IT FILES!



A PORTABLE  
POWER-SAW  
AND FILE

*New*  
**MULTI-PURPOSE TOOL**  
SAVES TIME — SAVES MONEY

★ The Saw-Chief attaches to electric and air drills, or may be driven by flexible shaft. Hack-saw blade in holder reciprocates rapidly with a 7/8" stroke. Cuts all metals—every gauge, wood, plastics, other materials. Eliminates slow, tiresome hand-sawing operations. Reaches into hard-to-get-at places with ease. Insert ordinary machine file for power-filing operations. It's portable... carry it from job to job.

## QUICK DELIVERIES

The Saw-Chief can be shipped quickly, ready for attaching to your drill or flexible shaft at only \$45.00. May also be obtained complete with heavy duty drill at \$90.00, or with high-powered, light-weight drill at \$85.00.

Phone your jobber for demonstration today or write us direct!

## LIBERALLY GUARANTEED

SAW-CHIEFS are guaranteed to give complete satisfaction. Your money refunded if the SAW-CHIEF does not save hours of labor on countless operations.

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EQUIPMENT CO.

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*Randall*  
**PILLOW  
BLOCKS**

Choosing Randall Pillow Blocks for your heating installations assures *quiet*, dependable, long-time service. Self-aligning and self-lubricating, they are available in types to meet every blower need.

Randall Pillow Blocks have over three decades of bearing experience behind them. Write us for help in solving your bearing problems. Let us send you our catalog No. 42.

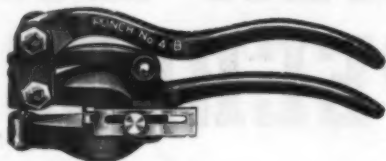
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## The No. 4B PUNCH by *Whitney*

This punch is accepted by leading contractors and dealers as a real time-saver in the shop and on the job. Men who use it every day know it can't be beat for clean, fast punching. Has a capacity of 1/4" through 16 ga., weight 3 pounds, 8 1/2" in length, depth of throat, 2". Complete tool includes three punches and three dies of specified sizes with die adjusting key.



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Complete chimney cleaning outfit is included in standard equipment.

Let some one else take the new house jobs—the sharpest pencil gets them. The real money in your business is in replacements and service. Anybody can make plenty money cleaning plants with a Red Streak Furnace Cleaner. While doing it you uncover cracked fire pots, warped grates, whole plants that need replacement. Selling the replacement is easy—and carries the full profit.

The Super Plan Book showing the "how" of successful basement selling and details of our 5-day "show me" free trial are yours for the asking.

**National Super Service Company, Inc.**

1944 N. 13th St.

Toledo 3, Ohio

among the towns and cities they support, and all these needs obviously will stimulate all industrial centers of the nation and bring vast loads to the railroads, the truckers, and the warehouse and export centers.

2. You may passionately feel we will not be inveigled into another war, but the fact remains that the British appear to be convinced Stalin is determined to destroy the Empire. From Stalin's viewpoint this might seem to be the time when Britain is most vulnerable and helpless. The present circumlocutions of international verbal pyrotechnics are designed, on one hand, to prepare us to support the British; on the other hand, to minimize the apparent warlike gestures and, at all events, to keep out of the mess. Every influence colored by Communist thought is, apparently, aimed at deriding British implications.

There are few Americans who wish anything to do with another war. Those who have even rudimentary



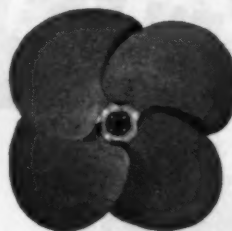
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A COMPLETE LINE OF  
HEATING AND AIR CONDITIONING  
EQUIPMENT



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### FAN BLADES AND BLOWER WHEELS

BETTER FAN satisfaction is assured when you equip your fans with Burden Aluminum or Plastic Blades.

Both are overlapping semi-pressure type. Aluminum Blades mounted on cadmium plated steel hub with steel or aluminum spider. Plastic Blades mounted on steel cadmium plated hub with aluminum spider.

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10 Sizes Made in Both Plastic and Metal

Quietness is an Inherent Characteristic  
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Write for Descriptive Folder



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## This is the METALBESTOS Way OF VENTING GAS APPLIANCES



METALBESTOS definitely exhausts the burnt gases to the outer air without condensing within the pipe. Because of Metalbestos patented construction the hot gases are insulated against the outer air and flow in a gaseous state to the top of the run under perfect draft conditions.

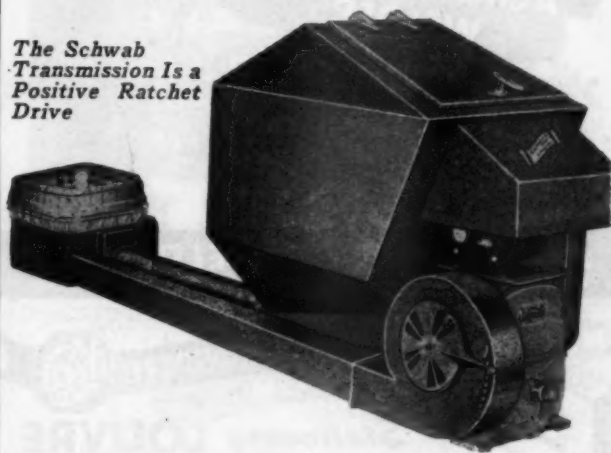
No "drainage system" needed, no floating flame at burner, no corrosion in pipe or appliance, no damage to walls. Metalbestos is the *scientific* gas vent and flue pipe that makes gas appliances perform perfectly. Write today for full details.

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The Schwab  
Transmission Is a  
Positive Ratchet  
Drive



Your customers depend on YOU to give them the most for their money. Make sure of continued business and high customer recommendations by installing the Schwab SAFE Stoker. All sizes of commercial and industrial stokers available now with capacities from 35 to 600 pounds per hour. Transmission is easy to operate and will last indefinitely. The Schwab SAFE Stoker power unit is made by Schwab for Schwab and will never be an orphan. Years of top performance make it your best buy. Write today for details!

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DUCTS

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PIPE

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See for yourself how MADE-RITE's "one-stop" source of supply helps you to more money and better installations. Precision manufacturing of Furnace Pipe, Duct Work, Smoke Pipe, and Fittings is the big reason for our established reputation. We'll help you select the right pipe or fitting for the job . . . and can, in most cases, supply ALL your needs with parts that will FIT the first time.

The address is below and all you have to do for more information on the precision manufactured "one-stop" source of supply for fittings, etc., is just drop us a postcard. Please do it now.

*"Made-Rite"*

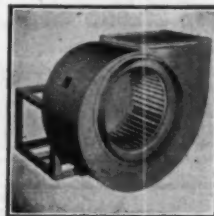
**FURNACE PIPE & FITTING CO.**

10th and MONROE ST., NEWPORT, KY.

## YOUR BLOWER Requirements

AVAILABLE AT

**Schwitzer-Cummins Company**



★ BLOWERS  
FOR EVERY PURPOSE

Double Inlet and Single Inlet

HY-DUTY Blowers, 9 3/4" to 25" • Top and Bottom Horizontal, and Top and Bottom Vertical Discharge • Top and Bottom

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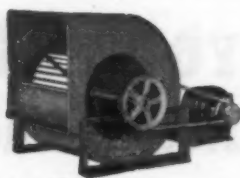
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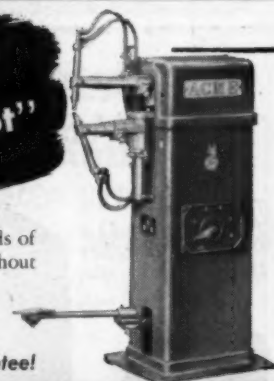
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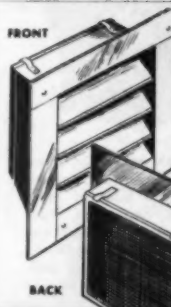
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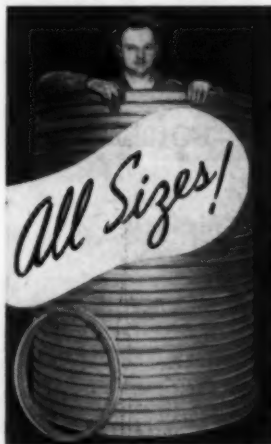
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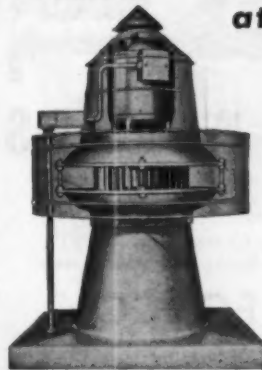
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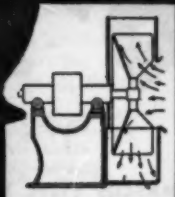
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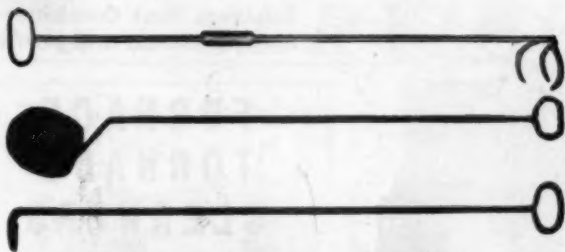


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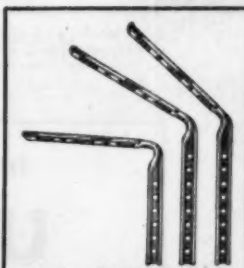


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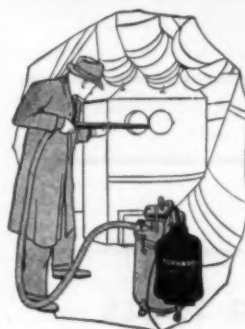
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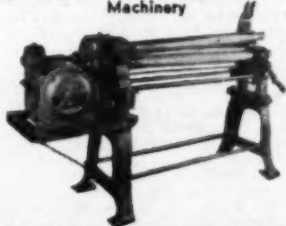
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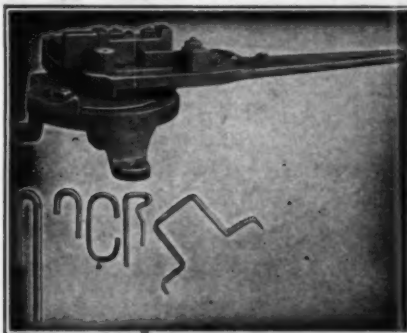
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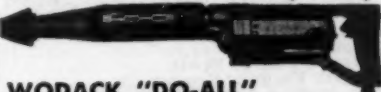
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